RAILROAD GAZETTE

FRIDAY, AUGUST 22, 1879.

Train Accidents in July.

The following accidents are included in our record for the month of July :

REAR COLLISIONS.

On the 3rd a coal train on the Pittsburgh, Ft. Wayne & Chicago road ran into the rear of a preceding coal train at Wampum, Pa. The engine and several cars were wrecked and the engineer hurt.

On the 5th the pay train on the Delaware, Lackawanna & Western road ran into the rear of a coal train near Portland, Pa. The pay train engine and the coal train caboose were badly broken, the conductor fatally and the engineer less severely hurt.

Very early on the morning of the 11th the first section of an excursion train on the Canada Southern road ran into the rear of a freight train which was going into a siding near St. Thomas, Ont., wrecking the engine and several cars.

The second section of the excursion train was signalled and stopped, but a freight train was following that so closely that a signal sent back failed to stop it in time, and it ran into the passenger train, wrecking the rear car and injuring seven passengers, besides a number who were slightly bruised.

On the night of the 11th a passenger train on the New York & Philadelphia New Line ran into a freight car which had been blown from a siding out upon the main track near Plainfield, N. J. Some damage was done, but nobody hurt.

On the night of the 11th a freight train on the New York, Lake Erie & Western road ran into some cars which had broken loose from a preceding freight near New Hampton, N. Y. The cars were wrecked and an engine damaged.

On the night of the 12th an express passenger train on the Fitchburg road ran into the rear of a local passenger train, which was going into a siding at Waltham, Mass. An engine and one car were damaged.

On the morning of the 15th a train of coal empties on the Syracuse, Binghamton & New York road broke in two near Onativia, N. Y., and the rear section ran into the forward one, piling up 40 cars in a bad wreck. The conductor and a brakeman were hurt.

On the morning of the 15th a freight train on the Atlantic & Great Western road ran into the rear of a preceding freight, which had stopped to take water at Hare Creek, Pa. Several cars were wrecked and an oil tank exploded ; the fire which followed burned up nine cars and an engine and destroyed the track for some distance. The road was blocked all day.

On the evening of the 16th a passenger train on the Canada Southern road ran into a freight-car, which had been blown out of a siding at Vienna, Ont., during a violent storm. Some damage was done, but nobody hurt.

Early on the morning of the 18th a freight train on the Pennsylvania Railroad ran into the rear of a stock train at Irwin, Pa., damaging an engine and several cars.

Very early on the morning of the 20th a freight train on the New York, Lake Erie & Western road broke in two, near Otterkill, N. Y., and the rear section afterward ran into the forward one, wrecking several cars and blocking both tracks three hours.

On the 21st an oil train on the Pittsburgh, Titusville & Buffalo road ran into the rear of a repair train near Miller Farm, Pa. The engine and caboose were damaged.

On the evening of the 21st a freight train switching in the Wabash yard at Toledo, O., ran into the rear of another freight, damaging the engine and two cars.

On the morning of the 22d a passenger train on the New York Elevated road ran into the rear of another train at Fifty-third street, in New York, doing some damage.

On the morning of the 22d a coal train on the New York, Lake Erie & Western road ran into a preceding coal train in Port Jervis, N. Y., damaging four cars.

On the evening of the 28th an express train on the North Penn & Bound Brook Division of the Philadelphia & Reading road ran into the rear of a local passenger train near Sandy Run, Pa. The express engine was badly damaged, and two cars of the other train completely wrecked and others damaged; six persons were hurt. Both trains were out of time on account of a very heavy rain-storm, which had flooded and washed the road in several places.

On the morning of the 30th a Wabash freight train ran into the rear of a Canada Southern stock train, which was standing in the yard at Toledo, O. The Wabash engine and two cars were badly broken and a lot of hogs killed.

BUTTING COLLISIONS.

On the 3d there was a butting collision between two coal trains on the Delaware, Lackawanna & Western road at Chenango Forks, N. Y. Both engines and several cars were damaged, and the platform of the station demolished by the wrecked cars.

On the morning of the 4th some cars broke loose from a freight train on the Chicago, Burlington & Quincy road at Kewanee, Ill., and ran down a grade and into the head of a passenger train, which was coming toward the station. Several cars and the passenger engine were badly broken, and the fireman hurt so that he died in a few hours.

On the 4th there was a butting collision between two passenger trains on the West End Narrow Gauge road, near Florissant, Mo. Both engines and one car were badly broken, and six persons hurt.

On the morning of the 14th there was a butting collision between a Pittsburgh Southern passenger train and a Little Saw Mill Run coal train on the track of the latter road, near Banksville, Pa. Both engines and a car were badly broken, and four train-men hurt slightly.

On the morning of the 30th there was a butting collision between an excursion and a regular passenger train on the Canada Southern road at Chippewa, Ont , by which both engines and one car were damaged, and a train-man hurt. Both trains were moving slowly.

CROSSING COLLISIONS.

Early on the morning of the 12th a Jeffersonville, Madison & Indianapolis freight train ran into an Indianapolis, Cincinnati & La Fayette freight at the crossing in Shelbyville, Ind. An engine and several cars were wrecked, and a brakeman badly hurt.

Early on the morning of the 12th, a freight train on the Pennsylvania Railroad ran into a New Jersey Central coal train at the crossing of the two roads in Elizabeth, N. J., damaging the Pennsylvania engine and several coal cars. It is said that the freight train was trying to stop, but the brakes would not hold it.

On the 18th a freight train on the Marietta & Cincinnati road ran into a Dayton & Southeastern passenger train at the crossing at Musselman, O., damaging the engine and three cars, and killing a tramp who was stealing a ride.

On the evening of the 24th a passenger train on the Delaware, Lackawanna & Western road ran into a passenger train on the New Jersey Midland at the crossing of the two roads at West End Junction, N. J. Both engines were slightly damaged and the Midland engineer hurt. It is said that the air-brakes on the Lackawanna train failed to work.

On the morning of the 30th a freight train on the Pittsburgh, Ft. Wayne & Chicago ran into a Chicago, Rock Island & Pacific freight at the crossing of the two roads just outside of Chicago, Ill. The Ft. Wayne engine and seven Rock Island cars were badly broken. It is said that the Ft. Wayne engineer did not stop before coming to the crossing, and a slight fog prevented him from seeing the other train.

DERAILMENT, BROKEN RAIL.

On the afternoon of the 18th, as a freight train on the Boston & Albany road was backing into a siding at Pittsfield, Mass., several cars were thrown from the track by a broken rail. The cars were thrown over against another freight train standing on the main track, upsetting several of them and piling up on them in a bad wreck.

DERAILMENTS, BROKEN WHEEL.

On the night of the 19th two cars of a freight train on the New York, Lake Erie & Western road were thrown from the track near Port Jervis, N. Y., by a broken wheel.

On the evening of the 23d four cars of a freight train on the New York, Lake Erie & Western road were thrown from the track by the breaking of a wheel, near Middletown, N. Y. Both tracks were blocked five hours.

DERAILMENTS, BROKEN AXLE.

Very early on the morning of the 21st a car in a freight train on the Central Railroad, of New Jersey, was thrown from the track, near Fanwood, N. J., by a broken axle. The car was thrown across the track and the road blocked seven hours.

On the evening of the 27th nine cars of a freight train on the New York Central & Hudson River road were thrown from the track near Granville, N. Y., by a broken axle. The road was blocked several hours.

DERAILMENT, BROKEN TRUCK.

On the night of the 28th a car of a passenger train on the Washington City, Virginia Midland & Great Southern road was thrown from the track by the breaking of a truck, near Orange Court House, Va. Two men were hurt, and the road blocked five hours.

DERAILMENT, BROKEN BRIDGE.

On the night of the 25th a freight train on the Denver & Rio Grande road broke through a bridge at Fountain Creek, Col., and the engine and seven cars went down into the creek and were piled up in a bad wreck. A brakeman was killed and the engineer and fireman hurt. The abutments of the bridge had been undermined by a sudden rise in the creek caused by a water-spout.

DERAILMENTS, SPREADING OF RAILS.

On the night of the 7th a passenger train on the Lake Erie & Louisville road was thrown from the track near Arcadia, O., by the spreading of the rails. The engine upset and was badly broken.

On the afternoon of the 14th two cars of a passenger train on the Southeastern Railway, of Canada, were thrown from the track at North Troy, Vt., by the spreading of the rails. One car upset down a bank and was damaged, but no injuries beyond very slight bruises are reported.

On the 23d a freight train on the Scioto Valley road was thrown from the track near Circleville, O., by the spreading of the rails.

DERAILMENT, ACCIDENTAL OBSTRUCTION.

On the evening of the 19th several cars of a train of coal empties on the Central Railroad, of New Jersey, were thrown from the track near Netherwood, N. J., by a dump-door which fell down on the track from the bottom of one of the cars. Several cars were wrecked and the track blocked a short time.

DERAILMENTS, CATTLE.

Late on the night of the 2d a freight train on the Belvidere Division of the Pennsylvania Railroad ran over two cows near Greensburg Quarry, N. J., and the engine and five cars were thrown from the track and piled up in a bad wreck, blocking the road all night. A brakeman was hurt.

On the 4th an excursion train on the Chicago & Eastern Illinois road ran over a cow near Watseka, Ill., and the engine and two cars were thrown from the track. The engine upset and was badly broken, injuring the engineer and fireman.

On the afternoon of the 6th a freight train on the Bradford Branch of the New York, Lake Erie & Western road struck a cow near Tarport, Pa., and the engine and four cars were thrown from the track, the engine going down a bank with two cars piled up on top of it. Three train-men were hurt.

On the morning of the 19th a freight train on the New Jersey Midland road ran over a cow near Rochelle Park, N. J., and several flat cars were thrown from the track, blocking the road a short time.

About noon on the 21st a passenger train on the Atlanta & Charlotte Air Line ran over a cow near Atlanta, Ga., and the whole train was thrown from the track. The engine went down a bank and was badly broken. The postal car was thrown across the track and the baggage car on one side, partly down the bank. The road was blocked seven hours. The passengers held a meeting and presented a testimonial to the engineer, George M. Berry, for his courage in sticking to his engine and stopping the train.

On the afternoon of the 22d a passenger train on the Albert Railway ran over a cow near Hillsboro', N. B., and the engine was thrown from the track.

On the evening of the 26th, as a repair train on the Chicago & Northwestern road was backing into Waukegan, Ill., it struck a cow and several cars were thrown from the track and wrecked. Four track laborers were killed or fatally hurt and seven others less severely injured.

DERAILMENTS, WASH-OUTS AND LAND-SLIDES.

On the 10th the engine of a passenger train on the Missouri Pacific road was thrown from the track by a land-slide at Oak Mills, Kan., and went into the mud in such a way as to be very hard to put it back.

On the evening of the 19th a freight train on the Baltimore & Ohio road ran into a land-slide at Hollofield, Md., and two cars were thrown from the track and ran down into the ditch. The road was blocked four hours.

On the morning of the 25th a freight train on the Missouri Pacific road was thrown from the track by a land-slide at Oak Mills, Kan., blocking the road several hours.

On the night of the 25th a freight train on the Baltimore & Ohio road ran into a wash-out at Williams Tunnel, Md., the cars piling up in a bad wreck, which blocked the road all night.

DERAILMENTS, MISPLACED SWITCH.

On the evening of the 9th the engine of a freight train on the New York, Lake Erie & Western road was thrown from the track at Sufferns, N. Y., by a misplaced switch, blocking the road for some time.

On the night of the 9th the engine and eight cars of a freight train on the Chicago, St. Paul & Minneapolis road were thrown from the track by a misplaced switch, at Fall Creek, Wis. Several cars were badly broken, blocking the road some hours.

Early on the morning of the 11th a passenger train on the Lehigh Valley road was thrown from the track at Fairview, Pa., by a misplaced switch. The engine went down a bank and was wrecked killing the engineer and fireman.

Very early on the morning of the 14th a passenger train on the Rensselaer & Saratoga road was thrown from the track by a misplaced switch at Green Island, N. Y. The engine upset and was badly damaged; the baggage-car and and one sleeping-car were also badly broken, and the track was blocked nearly ten hours.

On the afternoon of the 16th a passenger train on the Rockaway Branch of the Long Island road was thrown from the track by a misplaced switch at Springfield Junction, N. Y., and the locomotive upset into the ditch. A brakeman was hurt and the road blocked nine hours.

On the 18th a freight engine was thrown from the track by a misplaced switch in the Pennsylvania Railroad yard at Pittsburgh, Pa., and the fireman was thrown down and badly hurt.

On the morning of the 23d a freight train on the Missouri, Iowa & Nebraska road was thrown from the track by a misplaced switch at Alexandria, Mo. The engine upset down a bank and was badly broken.

On the 29th the engine and one car of a passenger train on the New York, Lake Erie & Western road were thrown from the track by a misplaced switch at Avon, N. Y. The engine went down into the ditch, and the road was blocked four hours.

On the morning of the 31st a passenger train on the New York Central & Hudson River road was thrown from the track by a misplaced switch near Churchville, N. Y. The engine upset down a bank, the two baggage-cars also upset, and the first passenger-car was piled up on top of them, making a bad wreck. The baggage-master was struck by a flying trunk and badly hurt.

DERAILMENTS WITH MALICIOUS INTENT.

On the 4th the engine and three cars of an excursion train on the Chicago, Pekin & Southwestern road were thrown from the track near Streator, Ill., by a switch which had been purposely misplaced. Little damage was done, as the train was running slowly at the time.

Early on the morning of the 25th a freight train on the Terre Haute & Indianapolis road was thrown from the track near Plainfield, Ind., where two ties and a rail had been laid across the track. The engine and 17 cars went into the ditch and were damaged, and a brakeman was hurt.

On the night of the 26th the engine and five cars of a passenger train on the Lake Erie Division of the Baltimore & Ohio road were thrown from the track near Havana, O., by a tie which had been fastened across the rails. The engine was upset and badly broken, killing the engineer and fireman, and a tramp, who was stealing a ride, was hurt.

DERAILMENTS, UNEXPLAINED AND MISCELLANEOUS.

On the night of the 1st, a passenger train on the Wabash road ran off the track near Napoleon, O., blocking the road an hour.

On the night of the 1st, a car of a freight train on the Baltimore & Ohio road ran off the track near Bluestone Quarry, Pa., blocking the road for two hours.

On the morning of the 4th, an excursion train on the Georgia Railroad ran off the track in a cut near Ponce de Leon Springs, Ga., and was delayed a short time.

On the morning of the 8th, two cars of a freight train on the New York Central & Hudson River road ran off the track at Little Falls, N. Y., tearing up the track badly and blocking two tracks for two hours.

Very early on the morning of the 12th two cars of a coal train on the New York, Lake Erie & Western road jumped the track near Passaic, N. J., blocking one track three hours.

On the night of the 13th a freight train on the Chicago, Burlington & Quincy ran off the track near Plano, Ill., blocking the road several hours.

On the morning of the 19th a yard engine on the Denver & Rio Grande road jumped the track in Denver, Col., and upset, killing two men and injuring two others. It was running round a very sharp curve at great speed.

On the night of the 19th the engine of a passenger train on Connecticut Valley road jumped the track close to a high bridge near Middletown, Conn. The air-brakes stopped the train just in time to prevent the engine going off the bridge. The road was blocked an hour.

Very early on the morning of the 24th four cars of a freight train on the New York, Lake Erie & Western road ran off the track at Howells, N. Y., blocking both tracks three hours.

On the morning of the 24th, as a freight train on the Philadelphia & Reading road was switching at Lorberry, Pa., a flat car broke loose and ran back down the grade at great speed, three miles to Pinegrove, where it jumped the track and ran into the side of a warehouse close by. The car was wrecked and a great hole knocked in the wall of the building.

On the morning of the 24th the engine of a passenger train on the Newark Branch of the Central Railroad, of New Jersey, ran off the track in Newark, N. J., delaying trains for a time.

On the 27th the engine of a freight train on the Baltimore & Ohio road ran off the track in the yard at Bellaire, Ohio.

On the morning of the 28th a car in a passenger train on the Western North Carolina road ran off the track at Mill Creek Bridge, N. C., and was damaged, injuring one man.

On the morning of the 28th a freight train on the Pennsylvania Railroad ran off the track at the stock-yards near Pittsburgh, Pa., doing some damage and blocking the road a short time.

On the 28th a special freight train with a circus on board on the Boston & Providence road ran off the track near Pawtucket, R. I.

On the night of the 28th a passenger train on the North Penn & Bound Brook Division of the Philadelphia & Reading road ran off the track at Pennlyn, Pa., doing some damage.

BOILER EXPLOSION.

On the 23d the engine of a freight train on the Houston & Texas Central road exploded its boiler just as the engine was leaving Sutton, Tex. The front part of the engine was torn to pieces and the fragments scattered around, a piece of the bell landing nearly a quarter of a mile away. The force of the explosion was all toward the front and the engineer and fireman escaped unhurt.

OTHER ACCIDENTS.

On the night of the 7th the engine of a freight train on the New York, Lake Erie & Western road broke a parallel road when near Oxford, N. Y., and was somewhat damaged.

On the afternoon of the 27th, as a passenger train on the New York, Lake Erie & Western was running through Middletown, N. Y., one of the engine-truck axles broke close to the hub of the wheel, and the wheel cast loose ran forward nearly 100 yards by itself and finally buried itself in a

brick wall. The train was quickly stopped and the engine did not leave the track.

This is a total of 81 accidents, whereby 14 persons were killed and 54 injured. Eight accidents caused the death of one or more persons each; 17 caused injury but not death, while in 56, or 69.1 per cent. of the whole number, no person received a hurt severe enough to be recorded.

As compared with July, 1878, there is an increase of 27 in the number of accidents, of 7 in the number killed, and of 13 in that injured; in every way a much worse record.

These accidents are classed as to their nature and causes as follows:

COLLISIONS:		
Rear collisions	18	
Butting collisions	5	
Crossing collision	5	
	—	28
DERAILMENTS:		
Broken rail	1	
Broken wheel	2	
Broken axle	2	
Broken truck	1	
Broken bridge	1	
Spreading of rails	3	
Accidental obstruction	1	
Cattle on track	7	
Land slide	3	
Wash-out	1	
Misplaced switch	10	
Malicious obstruction	2	
Runaway car	1	
Unexplained	15	
	—	50
Boiler explosion		1
Broken connecting rod		1
Broken axle, not causing derailment		1
Total		81

Four collisions were caused by trains breaking in two; two by cars blown out of sidings; two by failure of brakes to work properly; one each by storm, by careless running and by failure to use signals. Probably at least three more should be attributed to failure to use or obey signals. Eighteen accidents are traced directly to defect or failure of road or equipment.

The division of accidents and casualties according to classes of trains may be stated as follows:

Accidents:	Collisions.	Derailments.	Other accidents.	Total.
To passenger trains	6	20	1	27
To a passenger and a freight	8	..	..	8
To freight trains	14	30	2	46
Total	28	50	3	81
Casualties:				
Killed by	3	11	..	14
Injured by	30	24	..	54
Total	33	35	..	68

That is, there were 41 passenger and 68 freight trains to which accidents are recorded.

The number of accidents is very large for a summer month, due partly to many sudden and violent local storms, partly, perhaps, to an unusual press of traffic on many roads. Collisions are in about the usual proportion, but five crossing collisions in one month is something very uncommon, one or two being the general number. Crossing collisions may, as a rule, be safely charged to carelessness somewhere, either in the company's failure to provide proper signals and enforce their use, or in employes' failure to use or obey them when provided. Spreading of rails may be due to softening of road-bed by heavy rains, or perhaps great heat; cattle on track may be expected—and should be looked out for—at this season, when so many are left to run at large; but nine accidents, over one-tenth of the whole number, caused by carelessly misplaced switches make an inexcusably bad record, a record that is anything but creditable to the management and discipline of the roads. Three malicious derailments are recorded, one by a misplaced switch and two by obstructions placed on the track. These, of course, cannot be laid to the fault of train-men and may escape the vigilance of track-walkers on the most carefully guarded road, but switches left open must be charged to carelessness somewhere, and strict discipline cannot fail to reduce their number. The practice of running trains too close together finds one or two striking illustrations during the month. The only broken bridge recorded failed because of the undermining of its abutments by a sudden flood.

For the year ending with July the record is as follows:

	No. of accidents.	Killed.	Injured.
August	75	36	108
September	76	22	53
October	61	35	163
November	68	15	54
December	63	16	58
January	113	23	90
February	88	11	75
March	61	14	50
April	50	4	27
May	37	5	20
June	64	18	55
July	81	14	54
Totals	837	213	807
Totals, same month, 1877-78	810	208	836

The averages per day were for the month, 2.61 accidents, 0.45 killed and 1.74 injured; for the year, 2.29 accidents, 0.58 killed and 2.21 injured. The average casualties per accident for the month were 0.173 killed and 0.667 injured; for the year they were 0.254 killed and 0.964 injured. The month was much above the average in accidents, but below it in deaths and injuries.

Hewitt's Car Journal-Box Cover.

A prolific source of annoyance and expense on railroads is due to the loss of journal-box covers from cars. At first sight it would appear to be a very simple matter to devise some form of attachment, as of a hinge or bolts, by which they could be held in their place. A little experience, however, shows that hardly any method of attaching the covers will secure them, and that the ordinary methods of fastening are quite insufficient. Inventors have therefore exercised their ingenuity in devising ways of attaching the covers, and a great variety of these is now in use.

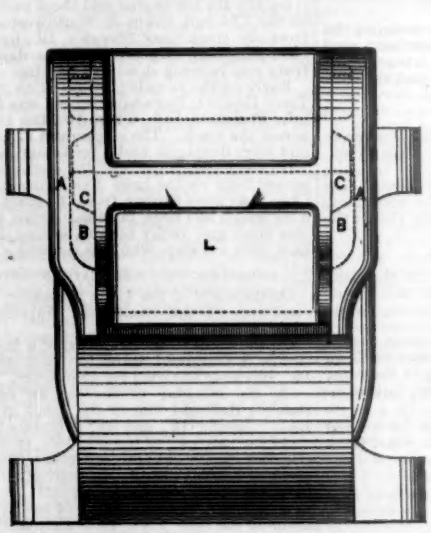

Fig. 1

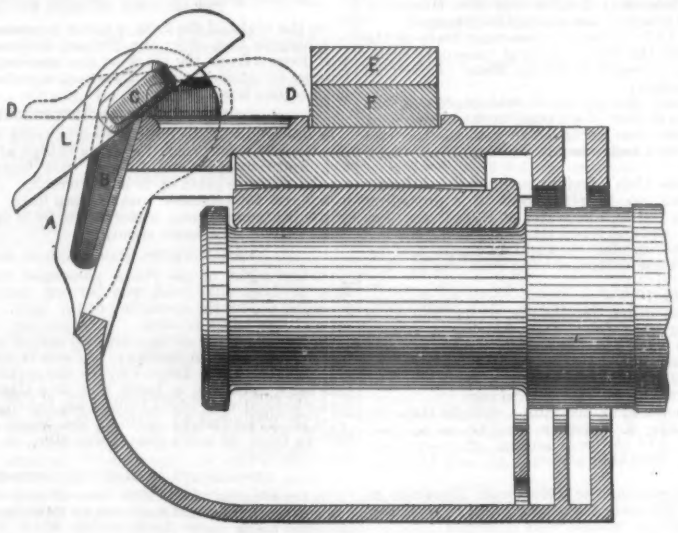

Fig. 2

HEWITT'S CAR JOURNAL-BOX COVER.

The engravings herewith represent a form which has been patented by Mr. Francis C. L. G. Susemihl and Mr. Herbert H. Hewitt of Detroit, and which has now been in use on a number of railroads, and has borne the test of extended practical use. Fig. 1 is a front view of the box, showing the cover *L*, as it appears when closed. Fig. 2 is a section of the box drawn through the centre of the axle. In this view the cover *L* is shown in the position it occupies when about half shut. The dotted lines at *D D* show the position of the cover when opened. The box has two lugs or flanges, *A A*, cast on each side of the opening in front. On the inside of each of these lugs a tapered groove or recess, *B*, is cast, which receives a corresponding lug, *C*, cast on the box cover. The groove is of somewhat the form of an inverted letter ⅂, and is arranged so that the cover is slipped into the former before the truck frames *E F* are bolted to the box. When these frames are fastened in the position shown, it is obvious that the box-cover cannot be removed from the grooves, although it can be opened and placed in the position represented by the dotted lines *D D*. The groove *B* being tapered, and the lugs on the cover being of the same shape, the jar of the car tends constantly to keep the cover tight when it is closed. If it be left open it is said that the jar of the car will shake it so that it will soon fall into the groove and thus close the opening.

This form of cover also has the great merit of cheapness. The box and the cover are all cast of the form represented, and no fitting whatever is needed, excepting to clean the castings, to put them together; and no bolt or other fastening, whatever is required to hold them in their place.

These covers are used on the Chicago, Burlington & Quincy, the Michigan Central, the Atchison, Topeka & Santa Fe, the Chicago & Alton, and a number of other Western railroads.

Information concerning this invention may be had by addressing the Hewitt Box-Lid Company, which controls the patents, at No. 122 Randolph street, Chicago, Ill.

—Mr. Nicholas Dubois, Chief Engineer of the St. Louis, Keokuk & Northwestern road, was killed, and Mr. James Brady, Superintendent of Bridges, badly hurt on Aug. 15. They were both riding on a construction train, which was thrown from the track by running over a cow.

Contributions.

The Road-Masters' Association.

TO THE EDITOR OF THE RAILROAD GAZETTE:

But little time now remains for the road-masters throughout the United States and Canada to prepare for their convention at Niagara Falls on the 10th of September next, and every one who intends to be present should be ready in time. Those who have some distance to travel to reach the Falls will have opportunities of seeing much that is new and interesting to them on their way to and from the convention, and they should have their note-books and pencils at hand. Every member should, on his return home, be able to hand his superintendent a well-filled note-book for him to read and digest.

Much valuable time may be saved at the convention if members will write out their ideas relating to such subjects as are likely to be brought up for discussion. There are many who cannot readily express an opinion in the presence of strangers, but if they have given the subject previous thought and written out their conclusions, they can give a clear and ready understanding of their ideas without the least embarrassment. Probably much of the time at the coming convention will be consumed in organizing; but after that is completed they should not be in too great haste to adjourn. One day given to discussion of such subjects as may be suggested, after all preliminaries, etc., are completed, would be profitable to the Association and the companies represented. It would serve to get each member into better working trim for the next convention by opening trains of thought and giving the mind a greater range of subjects on which to study. If any member has anything new in the line of tools, appliances, instruments, fixtures or machinery pertaining to the road department, he should, if practicable, show it up to the convention. If the affair is such as to be difficult of transportation as ordinary baggage, a photograph or drawing may be exhibited to good advantage. It would hardly be expected that a thirty-ton snow-plow would be placed on exhibition, but even that would not be a difficult thing to do, as some of the roads in that vicinity are provided with some good ones. The clearing of snow from the track is something that, to use an English expression, "puts a road-master about at times," and is refreshing to think and talk about with the mercury among the nineties. This subject would not specially interest those who are from the Southwestern and Southern States, but there is hardly anything that would be more interesting to road-masters from Canada, the New England, Middle and Northwestern States than to learn of the most approved methods and appliances for removing snow. Indeed, all mankind are interested in this matter, and so of everything else in the road-master's department. Every man, woman and child is interested in the manner in which the road-master performs his duty. Not only in this country, but all Europe; and, in short, every nation on the globe, is directly benefited by the labors of the American road-master. We supply the world with food or manufactures, according to their wants, and the price of their bread depend somewhat on the cost of transportion to our seaboard. The cheaper a railroad can be maintained in a good and safe condition, the cheaper our products can be carried to the sea; which certainly must be good for the pocket and the stomach of the hungry foreignor.

Other things being equal, the road that is kept in good condition, and has few or no accidents, can carry freight and passengers cheaper than one that is poorly kept and meeting with frequent disasters.

It follows, then, that *to improve all the railroads in the country must have the effect to reduce the cost of transportation generally.* The road-master labors to the end that traveling millions may go about in safety, and to provide safe and cheap transportation for all manner of goods. Thus our lives and property are largely in their hands, and there is not, in all the land, a class

of men carrying a greater responsibility than they. It is not expected that all matters of importance will be fully discussed at the coming convention, as much of the time must necessarily be consumed in getting into working order; but, if there is time for giving opinions on some of the questions herein respectfully submitted, it would be interesting to the railroad community: The proper elevation of the outer rail on curves and the best material for ballast. There will doubtless be much variance of opinion regarding the latter, for the reason that some material serves better in a warm than in a cold climate, and *vice versa*. The climate and nature of the road-bed should always be taken into consideration. In cold localities a material that retains moisture is objectionable, because of excessive expansion and consequent heaving when frozen, whereas in warm latitudes a ballast that will hold a moderate degree of moisture is preferable on account of greater elasticity and stability. There will also be a diversity of opinion as to the idea of shimming in summer, or in letting shims remain through the summer that were put in in winter. In this matter also, soil, climate, road-bed and ballast should govern. Hand-cars should also have a hearing, and in the question which is the best style of car, men from one section of the country will prefer a car propelled with a crank, while others will prefer the lever power. Probably, at some time, there will be a long discussion on joint fixtures. There are many candidates for public favor in this line, and ballast, climate and usage have much to do with this question, and a fastening that would do good service in one instance might prove a failure under other circumstances. The most efficient cattle-guard, the type of locomotive most damaging to the track, the best style of frog, the best style of filling track, the best switch, the best timber for ties, expansion of rails, and the best manner of getting rid of grass and weeds are subjects on which "all hands" would like an expression of the opinion of the convention.

Respectfully submitted, WM. S. HUNTINGTON.

The Longest Railroad Service.

EAST PROVIDENCE, R. I., August 18, 1879.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your paper of August 8, an item headed "The Oldest Conductor," claims that Mr. John Houghtaling, of the New York Central road, had been in *continuous railroad service* longer than any other man in the United States. It is not disputed that Mr. Houghtaling may be the *oldest conductor*, but there is at least one man in the United States who has seen longer continuous railroad service.

Mr. Isaiah Hoyt, of East Providence, R. I., commenced work for the Boston & Providence Railroad corporation in October, 1833, on construction, and was constantly employed on construction until July, 1835, when on the completion of the road he was appointed Superintendent of Repairs of the Providence Division, which office he has held ever since and still holds, making nearly 46 years' continuous service and more than 44 years in one position. Mr. Hoyt is now 67 years of age, having commenced work for the railroad when he was just 21 years old. He is still an active and vigorous man. I think I am justified by the facts in claiming for him the title of the oldest railroad man in the United States.

J. C. CRANE.

Examinations for Color-Blindness.

Dr. B. Joy Jeffries, whose recently-published volume on color-blindness has attracted much attention and deserves the careful attention of every railroad manager, has recently made an examination of the Boston & Lowell employés, concerning which he returned the following report:

BOSTON, July 29, 1879.

H. Hosford, Esq., Manager of the Boston & Lowell Railroad:

DEAR SIR: By your direction I have tested the visual power and the color sense of 94 of your engineers, firemen and switchmen. I herewith transmit the result of the examination and my certificate in each individual case. In compliance with your request to suggest such data as may assist your action, I would say as to "requisite visual power," I do not think we can do better in this country than to adopt the standard required in the Holland railroads, proposed by Professor Douders, and given in my work on "Color Blindness, its Dangers and its Detection;" at least until some other is agreed upon by an international commission, or a convention of the railroad commissioners of the several states of the Union.

At a meeting of the American Opthalmological Society at Newport July 25 I brought up this point for discussion, and the Society concurred with me in assuming this as a safe standard. As the railroad service of this country is so different from that of Europe, it is necessary to classify the employés to correspond with the two grades there recognized. The first class (A) would include engineers, firemen, and switchmen. In accordance with the above it is requisite for this class that the eyes and eyelids be healthy externally, without habitual congestion or inflammation; the field of vision not limited in either eye; the acuteness of vision in each eye normal, without glasses; the color perception normal by Professor Holmgren's test.

The second class (B) would include all other employés who are called upon or may be called upon to distinguish the colored night or day signals, and who have to do with the movement of the trains—viz., conductors, brakemen, bridge-keepers, gate-keepers, station-masters and train hands. For these it is requisite that the eyes and eyelids be healthy externally, without habitual congestion or inflammation, the field of vision not limited in either eye; normal acuteness of vision in one eye without glasses. With the other eye, acuteness of vision, one-half the normal; color-perception, not below partial color-perception, by Prof. Holmgren's test.

The 94 employés I was requested to test were all under class A. Upon reference to my certificates, the following numbers will be found to fall below the standard proposed, numbers 36 and 76 as being color-blind. Both these are red-blind. Below the visual standard: Numbers 1, 4, 12, 15, 28, 34, 41, 42, 59, 60, 70, 74, 79, 84, 85, 91 and 92. As has been shown by my examinations on your road, Professor Holmgren's method of detecting color-blindness and the usual methods of determining visual power can be, primarily at least, carried out by the examining ophthalmic surgeon in an ordinary passenger car, which may be attached to the paymaster's train, and the employés be tested while awaiting their turn with him without delay. Doubtful cases can be again subsequently tested in the presence of the officials of the road at head-quarters, or in the office of the examining surgeon when requisite.

Respectfully yours, B. JOY JEFFRIES, M. D.

Concerning this examination the Boston *Advertiser* says:

"The report of the tests on the Lowell road has been awaited by the railroad people throughout the country with a good deal of interest. The agitation of this subject has disclosed the fact that a station agent of one of our large surburban towns has one glass eye; that a popular engineer on a fast mail train has wholly lost the sight of one eye; that a freight-yard switch-tender cannot detect a green light; that a bridge-tender in the western part of the state has the use of only one eye, and is color-blind in the good one; and that two firemen on a road running across the state cannot read a grade-crossing sign one hundred feet distance.

"The methods pursued by Dr. Jeffries in making his tests were very simple. A passenger car was attached to the paymaster's car, and when it was switched off and the men gathered around, the persons to be tested were taken one by one into the car. The blinds were drawn except at either end; at one end stood the employé and at the other the doctor. First the latter hung upon the door beside him a mixture of twelve letters the size and style of the head lines of the *Daily Advertiser*. Each letter was called by the employé backward and forward, looking at them with both eyes, and then with either eye alternately, covering each eye with a bit of pasteboard. This was repeated with several smaller sizes of letters until the strength of the vision was determined. The length of the car and the size of the letter which the employé failed to read were mathematically scaled, so as to disclose the quality of the visual powers.

"While this examination is progressing Dr. Jeffries stands facing the man and carefully notes the strain in which the eye is put when reading these letters. Then the eyelids are observed as the employé stands before a half-bushel of small skeins of all the various colors and shades of worsted. Here he is given a large knot of red or green, and asked to pick out all the colors to match. The quickness with which positive colors and off shades were singled out to match is noted, and the result of each particular test is registered upon a printed form. The employé signs this and so does the doctor, and the examination is at an end. Three to five minutes sufficed with some candidates, but fifteen was consumed with others, the examiner seeking to get the very best ratings on their weak points. The examination on the Lowell Railroad was in progress almost daily for a month."

It having been reported in the *Advertiser* that some of the men who failed at this examination had succeeded very well with "practical" tests, Dr. Jeffries wrote to it as follows:

"I took occasion in your issue of Feb. 17, 1879, to call attention to the dangerous mistake of supposing that any tests with the ordinary marine signal lights or railroad lanterns would detect color-blindness where it existed. I then said: 'This I recently showed before the Railroad Committee of the Legislature. To those unacquainted with color-blindness and its peculiarities nothing would seem more simple and more fair for both employer and employed than to use the signal lights or lanterns in determining the chromatic sense of employés. The facts, however, are quite different. Repeatedly color-blind railroad engineers have been found who would rarely make a mistake when tested with the lanterns used on the road, yet it was proved that the only means they had of distinguishing them was by the difference in the intensity of the light. One color-blind engineer stated that he could make the white light appear to him like what was called green by simply turning down the wick part way, thereby reducing the amount of light, and that the light gave him the same sensation as he received from a light we called red when he turned the wick still farther down. [This case will be found on page 153 of my recently-published work on "Color-Blindness, its Dangers and its Detection."] By the apparent intensity of the light the examined, if color-blind, decides as to the color, red or green, and then he has also the benefit of the guess between the colors. Recent investigation has shown how useless such tests were to detect color-blindness by. As useless is, also, any method which simply calls upon the persons examined to name the colors of objects shown them.'

"In to-day's (Aug. 15) *Advertiser* you say: 'We learn that some of the railroad men who failed in the scientific experiments made by a skilled specialist, succeed very well in distinguishing the different colors of actual flags and lantern, when exhibited at the distance of 700 or 800 feet. Three trials were made, both by day and night, and were made in such a way as to test thoroughly the visual capacity of the persons tested.'

"I presume, of course, this refers to the examinations I made on the Boston & Lowell Railroad, reported in your issue of Aug. 14 (yesterday.) By referring to my report to the manager, it will be seen that I detected *red-blindness* in *two* employés. I know nothing personally of any further test of these men than my original one, nor do I know of any additional test of the men whose *visual* power was below a standard recommended by me as a safe one.

"Proper experiments with these two color-blind employés will prove that their decision as to red and green signals is based on the intensity of the light exhibited. The color-blind are themselves wholly unaware of this. One who had the kindness to allow me to exhibit his defect to the Committee on Railroads of the last Legislature, was greatly struck with the curious fact of colored lights, and how he must see them, as shown by my experiments. Last week I tested him again before a member of the Naval Committee of Congress and a member of the Railroad Committee of the Massachusetts Legislature. This was done with colored railroad lights, etc. He totally failed to *appreciate* the colors *red* and *green*. When the same lights were covered with gray or London smoked-glass of *proper density*, they had to him the same effect as when covered with the *red* and *green* railroad signal glass. The observers were as convinced as astonished. I must say here, without reserve or hesitation, that such experimentation cannot be carried out by the laity. One practical point can be readily understood. Most red and green glass, especially the latter, allows much *yellow* light to pass through it, by which the red or green-blind person will be assisted in his decision, since they see blue and yellow as do the normal-eyed.

"The point to be got at of importance to the community is this: Does a given employé see *red* and *green* as we do, not whether he can guess at them or judge by some other quality than color, viz., *intensity*. If his *color* sensation is not perfect, our lives and property should not be endangered by his defect. The whole question is most thoroughly and practically discussed and given *in extenso* in my book from the highest authority on the practical relations of color-blindness, viz., Professor Holmgren of Sweden. I would ask for *a careful study* of what is there given on the part of all who are interested from curiosity or official position in this very important question. It would not be right for me to let pass this very natural mistake of the possibility of determining color-blindness by the railroad lanterns."

The Massachusetts Railroad Commissioners have issued the following circular:

"In the session of 1879, of the Legislature of the state of Massachusetts, it was resolved that the Board of Railroad Commissioners be instructed to consider whether any legislation is expedient or needful with reference to the employment by railroad corporations of persons afflicted with color-blindness.

"It will be a favor to the Board of Railroad Commissioners, if full answers are made to the annexed letter of Dr. Jeffries.

"THOMAS RUSSELL,
"A. D. BRIGGS,
"EDWARD W. KINSLEY.
"Railroad Commissioners of Massachusetts.

"DEAR SIR: In order to assist the Board of Railroad Commissioners in this report, I would respectfully ask of you to send me accounts of any accidents you may know of, supposed to have been caused by color-blindness among railroad employés.

"The results of examinations of employés for color-blindness you may have made, or caused to have made.

"The results of your examination of other persons, as sailors, soldiers, school-children, factory operatives, etc., as to their chromatic sense.

"Also all or any laws and regulations as to the control of color-blindness on the railroads of your country, either made by the government, the railroad directory, or the railroad corporations.

"Thanking you for any of the above you may have already sent me, I would ask for any further made since then.

"Respectfully yours,
"B. JOY JEFFRIES, M. D.,
"No. 15 Chestnut street (Beacon Hill),
"Boston, Mass., U. S. A."

The Master Car Painters' Association.

We have received the following circulars from this Association:

SECRETARY'S OFFICE, Kent, Ohio, August 6, 1879.

The tenth annual meeting of the Master Car Painters' Association will be held in Detroit, Mich., opening on Wednesday, Sept. 10, 1879, at 10 o'clock a. m.

The Michigan Exchange Hotel has been selected as the head-quarters of the Association—rates $2.00 per day—where parlor accommodations for holding the meetings have been secured. Delegates may secure rooms by addressing D. D. Robertson, Chairman on Committee of Arrangements, Detroit, Mich.

A general invitation is given by the Association to all master car and locomotive painters throughout the United States and Canada to attend the convention and participate in the discussions which so directly interest every master painter in charge of the painting of railway rolling stock.

The following subjects, chosen at the last annual meeting, will receive special attention during the session. Members' names are annexed who were appointed to open the question. Those not being able to attend, will please forward their views to the Secretary by Sept. 6.

"Cleaning of Cars inside and outside, preparatory to varnishing: What is the Most Economical and Best Method?"—H. M. Billings, Pittsburgh, Cincinnati & St. Louis Railway, Columbus, O.

"What Makes the Best Size for Gilding, and for Wearing and Working Easily?"—B. F. Harris, Cleveland, Mt. Vernon & Columbus Railroad, Akron, O.

"Which will Wear the Longest, Two Coats of hard Rubbing Varnish and One of Wearing Body, or One Coat of Hard Rubbing and Two Coats of Wearing Body?"—A. N. Bradley, Ohio & Mississippi Railway, Cochran, Ind.

"What is the Best Method of Cleaning Coaches coming in in Winter, Covered with Ice, Sand and Ashes?"—E. C. Stow, Detroit & Milwaukee Railway, Detroit, Mich.

"Are Head-Linings Injured or Improved by Varnishing?"—Jos. Murphy, Louisville & Nashville Railroad, Louisville, Ky.

"The Mode for Painting and Finishing the Body of a Car, Durability and Economy Taken into Consideration"—E. C. Bradley, Pullman Car Works, Detroit, Mich.

"What is the Best Dryer, and what makes the best Mixture for Finishing Head Linings?"—J. C. Bischoff, Cleveland, & Pittsburgh Railroad, Cleveland, O.

"What is the Best and most Economical Style of Ornamentation for Car Head Linings?"—Wm. Davis, Canada Southern Railway, St. Thomas, Can.

"The Best Mode of Painting over Old Paint."—Wm. Sharp, Lake Shore & Michigan Southern Railway, Adrian, Mich.

"Which is the Most Economical and Durable Color for Painting Outside of Cars?"—Wm. Davis, Canada Southern Railway.

"Suggestions—To make our Association of the greatest benefit to Master Painters and to the Companies they represent."—D. D. Robertson, Michigan Central Railroad, Detroit, Mich.

R. MCKEON, Secretary.

PRESIDENT'S OFFICE, Detroit, Mich. Aug. 7. 1879.

To Master Car and Locomotive Painters:

GENTLEMEN:—The tenth annual meeting of our Association will be held in Detroit, Mich., on Wednesday, the 10th day of September next, to which you are respectfully invited to attend.

Those who are now identified with the Association, and have attended its meetings, must have observed an increasing desire on the part of its members to make our conventions interesting, instructive and profitable.

I would earnestly urge every master car-painter to participate in the proceedings of the coming meetings, as subjects of interest and importance have been assigned several members for discussion.

Interchange of opinions and experience of men who have devoted a lifetime to a profession occupying such prominence, so full of intricacies and so susceptible to such a variety of circumstances, must be regarded with importance. Every opportunity is given to discuss the peculiar difficulties which may have been the experience of any, and the most approved methods of reaching the best results, securing beauty, durability and economy, are prominent features of our conventions.

I would, in accordance with a resolution passed at our last meeting, earnestly solicit the co-operation of superintendents of roads and master car-builders, to aid us in furthering the interests of our Association. The information received and the benefits gained by those intrusted with this department of your work, is worthy of your kind consideration and hearty support.

Yours respectfully,
D. D. ROBERTSON, President.

—James McHenry, well known for his long connection with the Atlantic & Great Western and the Erie, suspended payment in London last week, and proceedings in bankruptcy have been begun against him. His liabilities are said to be $5,000,000; his assets are as yet unknown. It is thought that his suspension was hastened by the judgment for some $2,000,000 lately obtained by Receiver Jewett.

RAILROAD GAZETTE

Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

CONTENTS.

EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

THE CHICAGO & NORTHWESTERN REPORT.

There are some complications in this company's property which make the consideration of the proportion of capital stock and debt to property a little peculiar. Of the 2,154 miles which the company was working at the close of the year, it counts 1,616½* as the "Chicago & Northwestern proper;" but of this 413 miles in Iowa are leased, and of course form no part of security for this company's bonds, and are not represented by its stock. On the other hand, the company is substantially the owner of all the stock of three companies, owning 537½ miles of what it calls its "proprietary roads." It guarantees the interest on the bonds of these roads, and is as completely their owner as an individual would be if he owned all the stock. The whole property, therefore, covered by the stock of the Chicago & Northwestern Company (counting the Chicago-Turner section but once) is 1,711 miles. Of this mileage, owned directly or indirectly, 460 miles are in Illinois, 567 in Wisconsin, 197 in the upper peninsula of Michigan, 367½ in Minnesota, 381½ in the territory of Dakota and 81 miles only in Iowa. The long line of 353 miles across Iowa, which forms this company's connection with the Union Pacific, is leased, but this and a 60-mile branch of it in Western Iowa are the only leased lines of the company. The entire equipment of the 2,124 miles, we believe, is owned. If we divide the amount of stock and bonds outstanding by the 1,711 miles of railroad owned by the company, it gives $21,341 of stock ($12,581 of it preferred stock), and $27,590 of bonds per mile of road, or a total capital of $48,931 per mile—which is considerably below the average of railroads in the United States, though in condition the Northwestern's lines are doubtless much above the average. It has not much double track (about 60 miles), but has nearly a thousand miles of steel track (59 per cent. of the "Chicago & Northwestern proper" is steel), a large amount of very valuable property in the city of Chicago, about 2,200,000 acres of lands, which sell slowly at moderate prices (the gross receipts from land sales last year were $157,500) and an equipment of one locomotive to 4.54 miles of road, one passenger-train car to 6.22 miles of road, and 5.83 freight-train cars per mile of road owned—a pretty heavy equipment for a road which has so large a portion of its mileage on "the border," as it were, and accounted for by the fact that the company provides equipment for and works nearly a fourth more railroad than it owns.

The company added to its mileage during the fiscal year ending with May last, for which the report published this week is made, about 75 miles of new railroad in four different branches in Minnesota varying from 11½ to 25 miles long. The general account shows an increase of $1,213,058 in construction and equipment items, but very little of it went for these new branches, which cost the Chicago & Northwestern but $566,514, or $7,506 per mile—certainly very cheap additions to the property. The other additions are $402,500 for cost of the Menomonee River Railroad (completed the year before), $157,488 for cost of the Stanwood & Tipton Railroad, a branch in Iowa which the company has worked for several years, $355,209 for new construction on the old lines, $412,942 for additions to the equipment during the year, and $6,655 for Northwestern Union stock, there being a decrease of $121,736 in the balances due from proprietary roads for construction, purchase money, etc. The stock outstanding is substantially unchanged, but there is an increase of $388,000 in the aggregate funded debt. The addition to stock and bonds is but $5,112 per mile of road added. The change in floating assets and liabilities is small, the chief in liabilities being an increase of $260,000 in current bills, pay-rolls and accounts, and a decrease of $526,000 in the dividends to be paid in June.

When the statement of earnings and expenses for the year was first made, at the time of the election last June, we called attention to the fact that the result—permitting a dividend of 7 per cent. on preferred and 2 per cent. on common stock—was especially encouraging, because the year had been unusually unfavorable for the wheat crop in Minnesota and Northern Iowa, which give this company its chief grain traffic. If with so bad a harvest it could do so well, it seems reasonable to suppose that it will hardly ever do worse, especially as the country on its lines in Minnesota and further west is now growing rapidly, after several years (previous to 1877) in which there was a very slow growth in population and the area under cultivation. As to this growth, the company's Land Commissioner in this report gives the most striking evidence that we have yet seen, showing that the government lands in the three land districts of Southeastern Dakota entered by actual settlers during the year 1878 amounted to 1,935,038 acres, which even at 160 acres, the maximum amount, would require the settlement of 121,000 heads of families! From other authorities we learn that usually about one-third of the homesteads entered are not, after all, occupied, or not long enough to secure the land; but even 80,000 heads of families in one year settled in what has hitherto been one of the least occupied of territories is a notable movement. The company's own sales of lands, however, can hardly be called very great. Contracts for the sale of 73,386 acres were made during the fiscal year, 51,705 of which were in Minnesota. The total sales were 20 per cent. less and the Minnesota sales 31 per cent. less than in the previous year—doubtless on account of the failure of last year's wheat crop, which discouraged immigration. The company has still more than a million acres of land in Minnesota, which will not sell very freely until the alternate sections which the government has to give away are all taken up. But that time is approaching, and with the better crop of this year probably immigration will be stimulated. The average price obtained in Minnesota last year was $3.90 per acre. The company's chief interest in the land, however, is not to get a good price for it, but to get it cultivated.

It is doubtless largely the growth of Minnesota that accounts for the fact that, in spite of the disaster to the wheat crop, this company's earnings were so well maintained. The increase in the average mileage worked of the whole system was but 4⅓ per cent., and this was all in branches in Minnesota which could not have contributed much to the traffic; but the decrease in gross receipts was but 1¼ per cent., and there was an increase of 1½ on the Minnesota lines, and a decrease on all the other divisions that are reported separately.

This company's "proprietary lines"—the Winona & St. Peter, the Northwestern Union and the Iowa Midland—have never yielded the company any direct profit, and their working expenses have usually been nearly equal to their gross earnings, leaving the interest on their bonds—last year amounting to nearly a million—to be provided from the profits of the "Chicago & Northwestern proper." The expenses of the different roads are not given separately in the last report; but the earnings are. The results for the three for seven years are shown below:

	W. & St. P.	N. W. U.	Iowa Mid.	Total earnings.
1872-73	$723,616	.....	$84,781	$808,397
1873-74	794,820	$165,049	98,023	1,057,892
1874-75	562,503	226,554	88,516	877,573
1875-76	631,153	268,534	108,367	1,008,054
1876-77	577,270	269,658	100,017	946,945
1877-78	795,663	280,929	90,623	1,167,215
1878-79	807,411	278,451	74,453	1,160,315

The expenses not being reported separately for the different roads, and the La Crosse, Trempealeau & Prescott having been included with the "proprietary roads" until the last two years, we cannot give the working expenses and net earnings except for those years. But *including* the La Crosse, Trempealeau & Prescott, which is a profitable line, the net earnings of the four varied from $177,000 to $375,000, which lacked $618,000 to $848,000 of covering the interest on their bonds. For the past two years the results from the three remaining proprietary lines have been:

	1879.	1878.	Inc. or Dec.	P. c.
Gross earnings	$1,160,315	$1,167,215	D. $6,900	0.6
Expenses and taxes	1,103,855	864,819	I. 239,036	27.6
Net earnings	$57,460	$302,396	D. $244,936	80 8
Interest on bonds	964,346	955,175	I. 9,171	1.0
Deficit	$906,886	$652,779	I. $254,107	39.9

The Winona & St. Peter is the only one of these roads whose mileage has increased. It had 225 miles in 1872-73, 278 the next year, and after that 330 miles until last year, when the average worked by it was 381 miles. The addition of the 75 miles of new branches, presumably with a great deal of work to be done on them which properly belonged to construction, may account for the large increase in the working expenses of the proprietary roads. But though this increase was 27½ per cent. in the aggregate, it was only 15 per cent. per mile of road worked. As the greatest mileage of these roads is in Minnesota, good results were not to be expected this year, but it is just in Minnesota that the largest immediate growth of traffic is to be expected hereafter. The interest on the Iowa Midland bonds is $108,000, and it appears that in one year only have its *gross* earnings equaled this amount. The interest on Northwestern Union bonds is $245,000. The Winona & St. Peter interest now (including last year's new branches) is $641,410, and it is reasonable to expect that within a few years the net earnings will equal this amount.

It would not be fair to judge of the value of these proprietary roads by these results alone. The Winona & St. Peter contributes a very large amount of traffic to the road east of the Mississippi, over which most of it is hauled a distance of about 300 miles at rates yielding a fair profit. Aside from its future promise, this road could hardly have been spared from the Northwestern's system heretofore, even though a considerable contribution was required yearly to meet its deficit. Its progress, it is true, has been slow, but then the country through which it passes, as we have said, did not fairly begin to grow until 1877. It will certainly make a better showing the current year, although the crop is only a tolerable one.

* Properly 1,588½ miles; for the 30 miles of double-track road between Chicago and Turner Junction is counted as two roads in the inventory of track in the report.

STANDARD SCREW THREADS.

Those who undertake to effect a reform nearly always become bores before they accomplish the task they have assumed. Individual and what is called public opinion is so obdurate that only constant iteration and reiteration will serve to change it. Doubtless, too, the complexity of modern life makes it more difficult to secure a hearing when anyone wishes to call attention to an evil. Everybody with any capacity for doing things is now so busy, and generally so overworked, that it is hard to secure a hearing or enlist his aid when anything is to be set right. This is especially the case with railroads and railroad officers. The constant demands which the maintenance and operation of road make on railroad managers' time and energies very soon lead to the assumption of a mental exterior analogous to that of the surface of a duck's back, or a cabbage leaf, and which resists new ideas as they do water. The vocation of the reformer, however, is to get below this impervious exterior, which usually can be done only by repeating over and over again what he has to say, until his importunity secures a hearing and the assent of those addressed.

Be it acknowledged, then, that the writer has assumed the attributes of a bore and that he will accept, in the interest of the cause he represents, whatever obloquy is imposed upon that character.

First, then, with reference to the extent of the evil, let us quote from the report on this subject made to the last convention of Master Car-Builders, which was written by a member with many years' experience in his occupation. In that report it is said "there are numerous parties manufacturing cars by the hundreds and thousands, * * * and in the one essential particular of bolts and nuts there is no attempt made for securing uniformity. * * * One has a sharp V thread, another has a thread with a rounded top and bottom, another a flat top and bottom thread, and still another with an indefinite thread, amounting to almost no thread at all, for it neither has depth nor pitch nor resisting surface, fit for railroad or any other service. Some are $\frac{1}{32}$ in. smaller than the true gauge, while others are $\frac{1}{32}$ in. larger; they present a conglomeration which is very remarkable and very undesirable."

The picture has not been overdrawn, and what fills with astonishment any one who will take the trouble to examine into the subject is that this condition of things should be tolerated and that more effectual means should not be taken to obviate the evil. Doubtless the general indifference existing in relation to it is due to the fact that most master mechanics, car-builders and railroad managers are of the opinion that it is very much easier at the present time to get along with the existing condition of things, and some of them feel "after me, the deluge." One of the worst evils and most serious difficulties grows out of the use of over-sizes of iron, which has gradually grown up, no one knows exactly how, but which has come to be an established practice; so much so that the manufacturers of taps and dies are obliged to keep in stock over sizes for all the different dimensions of bolts. With reference to this the committee says: "If the members will take the trouble to measure the diameters of bars ordered, they will probably find a variation in size equal to $\frac{1}{32}$ and, perhaps, in some cases, $\frac{1}{16}$ of an inch larger than the size ordered." It is then pointed out that $\frac{1}{32}$ over size in $\frac{5}{8}$ iron results in an increase in weight of 10¼ per cent., and $\frac{1}{16}$ in. in nearly 21 per cent. In $\frac{3}{4}$ iron the increase due to such over size is 8½ and 17½ per cent. It must be remembered that this additional weight is clear loss, just as much as if the buyer paid that much more than the market rate for the iron purchased, and all through carelessness in not inspecting iron received from dealers and manufacturers. All this can be saved simply by adopting standard sizes of screws, and then ordering the iron of the exact size required. It may be said, though, that this over size may be a necessary addition to the strength of the bolts used, and that they will not be strong enough unless they are made over size. It should be remembered, however, that the strength of bolts is seldom calculated with a margin of safety which is confined within limits as narrow as those indicated, and even if it were, a screw of the form of the Sellers standard of a given diameter is fully as strong as one with a sharp V thread $\frac{1}{32}$ or $\frac{1}{16}$ in. larger in diameter. The reason for this is that the Sellers threads are flattened at the top and bottom by an amount equal to $\frac{1}{8}$ of the pitch, so that the thread is only cut three-fourths the depth of a sharp V thread having the same angle, so that the diameter of the screw and the strength of the bolt is considerably greater at the root of a Sellers thread than it is at the same point of a V thread. The difference in the form of the threads, therefore, compensates largely for the diminution in diameter.

It may be said here that uniformity in screw threads can never be attained in railroads unless managers will abandon all irregular forms and proportions and adopt the Sellers system. The latter has now on its side such a weight of authority that there is no hope that any other will receive a sufficient sanction to lead to its general adoption. To each railroad manager it therefore becomes a question whether he will use on his road a system which conforms to that which is destined to come into general use, or whether his line will use one which will be different from the established standard. Uniformity can be secured only by adopting the Sellers standard, and abandoning all over sizes.

To secure uniformity, though, it is absolutely necessary that screw-cutting tools should be made accurately and the sizes maintained with the utmost precision. It is impossible to do this unless the work is done in the most systematic way, by skillful workmen and in a shop fully equipped with the most complete machinery and gauges. It is hardly necessary to say that these will not be found in ordinary railroad shops, and consequently the work done there is always more or less imperfect and inaccurate. Probably few railroad men have any idea of the extent and perfection of the equipment of some of the establishments for the manufacture of taps and dies. A visit to some of these places would, we think, at once lead any master mechanic to despair of ever competing with them in either the quality or the cost of such tools, if made in his own shops and with the imperfect appliances ordinarily used for that purpose. The committee which reported on this subject seemed to realize this, and report that "if purchased from a first-class manufacturer, who makes a specialty of taps and dies, their cost will probably be found less than if we made them ourselves, and then we may depend upon securing an accuracy scarcely otherwise attainable."

It may be thought by some managers that great confusion and expense would necessarily result from the introduction of a different standard of screws from that at present in use. This, it is believed, is a mistake, because it will be found in nearly all cases that the confusion already exists, and the introduction of a standard will diminish instead of increasing it. If a railroad manager will take the trouble to examine the screws used in the cars and locomotives made by different builders, he will soon discover that all or nearly all differ in their diameters, pitch and form of thread, and probably none of them are like the screws in use at the shops of the road. In fact, it will appear that in many cases the screws used in the different shops on the same line are not alike, and in others that in the car department one system is used and in the locomotive department another. The adoption of an established standard would in such cases simplify matters—if in no other way, by fixing a standard for all new work.

On the New York, Lake Erie & Western Railroad this matter, like a great many others, was in a state of great confusion when the present management took charge. After investigating the subject thoroughly, Mr. Chanute, the Assistant General Superintendent, found that a thorough reform was needed, and issued the following order:

"In order to preserve uniformity in screw-threads, the following rules shall hereafter govern:

"1. All new taps, master-taps and such dies as are not attached to machines required for regular use, shall hereafter be procured upon requisitions, instead of being made at each shop as wanted. The workman hitherto doing such work shall be relieved or assigned to other duties. Taps for special work may either be made or ordered, as circumstances will warrant. New taps and dies shall, however, be ordered only when actually required for use, and the present supply shall be utilized until worn out.

"2. All new engines and cars shall be constructed with screw-threads, bolt-heads and nuts in exact conformity with the United States standard, known as the 'Franklin Institute' or 'Sellers' system.

"3. All iron or steel received for bolts, shall be carefully inspected to make sure that it does not run over or under size, and bars involving double cutting or too small shall be rejected.

"4. All new bolts, etc., for the repair of the existing rolling stock shall be cut to the exact standard sizes, except in cases where great expense or inconvenience would result therefrom.

"5. Such of the existing taps and dies as may be found to differ from the exact standard shall be used only to duplicate existing threads in repairs of the rolling stock, and only so far as necessary to prevent waste or extra expense."

The regulations given in this order are recommended to the managers of other railroads for imitation and adoption.

The Last Crop Year.

The crop year for small grain may be assumed to begin with August, the beginning of that month being much too early for part of the country and too late for another part. For the year ending with July, which will at least include the greater part of the grain marketed from the harvest of each year, the receipts of the eight reporting Northwestern markets have been, flour in barrels and grain in bushels:

Year.	Flour.	Wheat.	Corn.	Oats.	Barley.	Rye.
1872....	5,043,864	39,725,674	69,585,706	28,919,490	6,385,563	2,760,027
1873....	5,781,225	54,833,138	62,423,240	29,143,324	9,129,913	1,901,338
1874....	6,309,895	82,947,366	62,818,017	25,836,164	7,007,673	1,761,216
1875....	5,397,843	65,820,727	46,966,218	22,591,127	5,472,408	1,227,619
1876....	5,343,669	66,287,202	62,913,020	28,489,340	7,657,037	2,227,106
1877....	4,802,594	39,684,510	81,646,506	21,691,654	8,492,032	2,807,878
1878....	5,949,054	77,492,228	87,603,769	26,972,598	9,409,741	4,036,126
1879....	6,352,421	93,364,394	93,068,402	32,021,709	9,566,148	4,738,181

The totals, reducing flour to wheat at the rate of five bushels to one barrel, are as follows, receipts of the seven Atlantic ports being given as well as Northwestern receipts:

	Northwestern receipts.	Atlantic receipts.
1871–72	172,595,780	
1872–73	186,337,078	
1873–74	211,819,941	
1874–75	169,717,434	256,743,856
1875–76	194,282,110	222,978,365
1876–77	178,875,250	192,677,870
1877–78	235,259,732	287,023,834
1878–79	264,550,770	324,076,125

Taking the aggregate of all grains, it can hardly be said that any decided tendency to increase appears during the six years previous to 1877. The receipts of 1871–72 were nearly as great as those of 1876–77. An examination of the receipts of different kinds of grains gives a similar result. There is no one grain of which the receipts increased steadily. Wheat, as usual, has fluctuated greatly, but the receipts from the harvest of 1876 were smaller than those from the harvest of 1872. The extraordinary wheat harvest of 1873 was not equalled, indeed, until 1878. In the last two years, however, there are unmistakable indications of an enlarged agricultural industry.

The receipts of the Northwestern markets by no means indicate the total surplus marketed, nor do they even serve as a key to the surplus, by preserving the same proportion to the total from year to year. The quantity which is shipped through from the West to the East without passing through or being reported at any of the eight reporting markets has always been large and increases from year to year. The part which is thus shipped to interior points in the East for consumption there is no way of tracing; but the receipts at Atlantic ports of late years include a large amount of such shipments. That it is an increasing amount is shown by the difference between the amount of Northwestern receipts and the amount of Atlantic receipts. In the earlier years sometimes the Northwestern receipts were the largest. Last year the receipts of the seven Atlantic ports were nearly 80,000,000 bushels more than the receipts of the eight reporting Northwestern markets, and the excess varied from 14,000,000 to 52,000,000 in the four previous years.

Apparently the crop year on which we have just entered will produce at least as good results as the last one. The wheat crop seems to be fully as large, and perhaps larger, and unless some such misfortune as an early frost should occur (it will be the middle of September before the crop will be absolutely safe) the corn crop seems likely to be larger. The large Western immigration of the past three years has evidently materially increased the area under cultivation, and we may expect hereafter a larger average production than before 1877. The Minnesota authorities, for instance, report an acreage of wheat 50 per cent. greater in 1879 than in 1877, and there must have been a similar increase recently in Kansas and Nebraska. Probably the addition of wheat acreage in these three States, which have received most of the immigrants, would yield 40,000,000 bushels, with an average crop.

The past two years, however, have been more favorable to the older Western states than to the newer ones, there having been remarkably fine crops of winter wheat in Ohio, Michigan, Indiana and Central and Southern Illinois both years. Last year there was an enormous production in Kansas and a large one in Nebraska also, but a poor crop in the Northern half of Iowa and Illinois and in Wisconsin, and a miserable one in Minnesota. All the district where wheat was bad last year has a fair yield this year, and Minnesota has a vast increase in acreage, and Iowa probably a considerable increase. But the crop is poorer in Nebraska and much poorer in Kansas, and how far this is overcome by increased acreage is not certain. All these questions of the location of the good and bad crops are of vital interest to the local railroads. It is only the trunk lines which are sure to profit by a large aggregate crop, wherever it may be produced. And even they are largely affected by local circumstances. The fine winter wheat crop of Southern Ohio, Indiana and Illinois last year doubtless profited the Baltimore & Ohio and the Pennsylvania, which have lines running directly through the whole length of the territory, more than the other two trunk lines. And the repetition of this fine crop this year will be specially favorable to these railroads. They do not get much, if any, more from the competing points in this southern district, than the other roads do; but the local production does not all go to these competing points, and perhaps only a small part of it.

It appears, however, that nowhere has there been such a failure of the crops this year as there was in Minnesota last year, and no railroad which will suffer so from light grain traffic as some of the Minnesota railroads suffered last year. There will be several, doubtless, which will not have so much to carry as they had last, but it will not be so much on account of an exceptionally small traffic from this crop as on account of an exceptionally large traffic from the crop of 1878. We cannot expect every year to be the best year. That would require progress and prosperity to be uninterrupted everywhere.

Wheat in Minnesota.

The Minnesota wheat crop, which has been the subject of so much speculation that one might suppose that it formed the chief source of supply, though in fact it is not more than one-tenth of the total production of the United States, and has always (unless this year is an exception) been less than Iowa's production, is now all harvested under favorable circumstances. It is not a good crop—not nearly as good as that of 1877, though the acreage is reported to be no less than *one-half* greater than in that year. The best authorities, after the most thorough canvassing, now state the crop to be from

38,600,000 to 40,000,000 bushels. The latter estimate was given by the St. Paul *Pioneer-Press* while the crop in the northern part of the state was not half harvested. The first was given last week by the Winona *Republican*. The difference is in the estimate of the yield per acre in the northern part of the state, which the *Republican* says is not more than 16 bushels per acre. The papers agree on 13 bushels as the average in the southern part of the state, where probably an average crop is 16 or 17 bushels. The location of the crop interests the different railroads. The Chicago & Northwestern and the Chicago, Milwaukee & St. Paul do not penetrate with their own lines the northern wheat district, but they carry to Lake Michigan a very large part of all that goes to St. Paul or is manufactured at the great mills of Minneapolis. The lines of the St. Paul & Pacific and the Northern Pacific carry the northern crop either to St. Paul or Duluth, the former road having much the greatest mileage within the wheat-growing district. But though the yield per acre is greatest in the northern part of the state, the aggregate production is much the greatest in the southern part, where there is much more land under cultivation.

The largest crop of wheat heretofore raised in Minnesota was 33,300,000 bushels, in 1877. The excess this year, therefore, over that crop is 5,300,000 to 6,700,000 bushels. But this will not give very much more to be marketed than in 1877. The increased acreage will require about 1,500,000 bushels for seeding, and the increased population much of the remainder for food. Moreover, though the total amount of transportation will be as great with as great an amount exported, the railroads will hardly profit as much by it, for the reason that it will be shared by a greater number of lines. The railroad mileage of Minnesota has increased about one-fourth in the past two years, and though a very large part of the new mileage contributes all its traffic to the old mileage, and with the numerous extensions in the western part of the state the average haul will be longer than then, it is not to be expected that the average distance a bushel of wheat is hauled, and certainly not the average receipt and profit for carrying a bushel, will be increased one-fourth, as the railroad mileage has been.

Neither will the prosperity of the state be increased in proportion to the mileage. The crop is divided among a much larger number of farmers. The average yield is (at the largest of the two estimates) 14⅛ bushels per acre this year, against 18¼ in 1877. The expense of raising and marketing will be as great this year as in 1877, and the price of wheat was then much higher than it is now. The farmers, therefore, will have smaller surplus profits this year, though there are so many more of the farmers that their indispensable requirements will amount in the aggregate to a great deal more.

It must be remembered, however, that 1877 was the most prosperous year in the history of Minnesota, as last year was one of the most unprosperous, so far as it depends upon the wheat crop; and it does depend upon that crop to a greater extend than any other state in the Union. This year is a mean between the two, apparently, so far as average prosperity is concerned, though the aggregate production is so much larger than ever before. The acreage of 1879 is 16½ per cent. greater than in 1878, and the yield 14⅛ against 12⅛ bushels per acre, the aggregate production being about one-third, or 10,000,000 bushels more than last year, and the average quality very much better. Thus, if this year is less prosperous than 1877, it is much more prosperous than 1878.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Sioux City & Pacific.—The *Nebraska Division* is extended from Wisner, Neb., west to Stanton, 17½ miles.

Burlington, Cedar Rapids & Northern.—The track on the *Iowa City Division* has been extended from Iowa City, Ia., west by south 20 miles.

Chicago, Milwaukee & St. Paul.—The *Viroqua Branch* is extended from Malvina, Wis., southward to Viroqua, 21 miles, completing the line.

Cincinnati Southern.—Extended from Burnt Fields Viaduct, Ky., southward to the Tennessee line, 8 miles.

Milwaukee, Lake Shore & Western.—Extended northward to Marion, Wis., 3½ miles.

Clarksburg, Weston & Glenville.—Extended southward to Jane Lew, W. Va., 4 miles. It is of 3-ft. gauge.

This is a total of 73 miles of railroad, making 1,346 miles thus far this year, against 1,005 miles reported for the same period in 1878, 943 in 1877, 1,231 in 1876, 607 in 1875, 916 in 1874, 2,028 in 1873 and 3,485 in 1872.

THE ST. PAUL, MINNEAPOLIS & MANITOBA COMPANY is offering in the market an issue of its 7 per cent. first-mortgage bonds, issued at the rate of $12,000 per mile on its railroad lines in Minnesota, formerly the St. Paul & Pacific. There certainly has been a remarkable change in the position of this company within a year or two, as well as in its financial standing. Its railroad system is now nearly complete and extends throughout the whole length of the valley of the Red River of the North, from Breckenridge not only to the north line of Minnesota, but further by a Canadian railroad, all of whose traffic it must receive though it does not own it, nearly to the mouth of that river, and to a chain of navigable lakes and streams in British America capable of carrying pretty much all that the country is capable of producing, even if the Canada Pacific should not be completed, and great things are said of the capacity of this country around and west of Lake Manitoba for wheat production. It has, or will have shortly, a long loop to ist line, and then a total mileage of 667 miles, most of which is in an open and productive country, a little, on the eastern part of both its lines, being wooded. The population is comparatively light everywhere on its lines, and especially in the Red River valley north of the Northern Pacific, but it has received a considerable immigration within the past two years, and there has also been a considerable immigration to Manitoba, which will afford traffic to the whole length of its line. It has a land grant of 2,000,000 acres, largely in the Red River valley, which will not probably be much in demand until the government land has been taken; but there is no doubt that the land on its line is capable of as great a wheat production as almost any in the United States, and though there are other considerable drawbacks it is pretty sure to be generally occupied in course of time, and to afford a large traffic to the railroad if no other roads shall be built near its lines.

It is but a short time ago that this company (or rather its predecessor) seemed to be in an almost hopeless condition, its securities being worth but a small fraction of their face, and the extension to the Manitoba line was built by the Receiver to save the land grant. Now the price at which the bonds are offered is 105. It must not be supposed, however, that this represents the improvement in the value of the property, great as that undoubtedly has been. It was one of the misfortunes of the old company that it had an extravagantly large funded debt of about $15,000,000 on about 300 miles of completed road, or $50,000 per mile—greater than the whole stock and bond capital of such roads as the Chicago, Rock Island Pacific, the Chicago, Burlington & Quincy, and most of the other prosperous Chicago railroads. Of course, it may be easy to make a profit of $720 per mile where $3,500 was entirely out of the question.

THE FRENCH RAILROAD SYSTEM, according to the official report just published, produced the following results in 1878 compared with 1877:

	1878.	1877.	Increase.	P.c.
Miles worked Dec. 31.....	13,786	13,352	434	3.3
Average worked during year.....	13,498	13,058	440	3.4
Gross receipts....	$175,741,733	$164,033,375	$11,708,358	7.1
Receipts per mile.	13,018	12,562	456	3.6

France has an area of 204,000 square miles, and has 36,000,000 inhabitants; and the most thickly peopled part of the United States, that east of Indiana and north of the Ohio and the Potomac—New England, the Middle States, Maryland and Ohio—have 222,000 square miles, and by the census of 1870 15,870,000 inhabitants, and now probably 18,500,000; and they now have 25,809 miles of railroad. France then has one mile of railroad to 14.8 square miles of territory and 2,620 inhabitants; the eastern United States one mile of road to 8.6 square miles of area and to 718 inhabitants. There is nearly twice as much land and nearly four times as many people to support a mile of railroad in France as in the most thickly populated portion of the United States of similar area. The average contribution per square mile of area and per inhabitant to the earnings of the French railroads was $861 per square mile ($1.35 per acre) and $4.90 per inhabitant. In the United States territory referred to, the earnings of the roads were $9,128 per mile (and so much larger in the aggregate, from about twice the mileage, than the earnings of the French roads, though nearly a third less per mile); and the average per square mile of area was $1,097 ($1.71 per acre), and $13.17 per inhabitant—the latter nearly three times as much as in France, where there are nearly four times as many people per mile of road.

In the United States, however, a very large portion of the earnings of the roads is from traffic coming from beyond this district, which is not the case in France. About one half of the total earnings of the 80,000 miles of railroads of the United States go to the roads of the states named, having one-third of the total mileage.

WATER RATES have all changed a little within the past week, though not all in one direction. Lake rates remained pretty steady at 4½ to 5 cents per bushel for corn and half a cent more for wheat until Tuesday, when a reduction of half a cent was reported—4 cents for corn and 4½ for wheat. On the other hand, canal rates advanced, first ¼ cent a bushel, and Tuesday another ¼, then standing at 6¼ for wheat, 6 for corn and 4½ for oats from Buffalo to New York. Rail rates from Buffalo have been nearly all summer reported the same, or very nearly the same, as canal rates; but for the last week they have been higher, and on this Tuesday were reported to be 8 cents for wheat, 7½ for corn and 5 cents for oats. Ocean rates have been about a penny lower nearly all the week—generally 7½d. per bushel by steam from New York to Liverpool. The transportation charges from Chicago to New York by water thus remain about the same at the end as at the beginning of the week. From Chicago to Liverpool there has been a reduction of 2 cents a bushel. Charges, including elevation, are now (Wednesday) about 11¾ cents a bushel for wheat from Chicago to New York, against 15 cents by rail. The advance in rates next Monday will bring up the rail rate to 18 cents a bushel, and doubtless the announcement of the advance ten days beforehand has somewhat stimulated shipments, though when the notice was given it was already difficult to supply the demand for cars. The railroads have rarely, if ever, got so large a share of the traffic when they were charging profitable rates.

MISSOURI RIVER PASSENGER RATES seem to be an endless source of trouble to the trunk lines. They and most of their connections this side of the Mississippi have had nothing to say against any reduction that might be made west of the Mississippi in the course of the contest between the Chicago and the St. Louis roads; what they have sought to insist upon was that rates between eastern points and places west of the Mississippi should not be *less* than rates between eastern points and St. Louis or other places *on* the Mississippi. All parties have agreed to this two or three times, but it has usually been but a short time after the agreement that some one would be selling tickets from Kansas City to New York for less than the rate from St. Louis to New York, so that the comparatively small business from "Missouri River points" tends to demoralize rates on the much larger business from St. Louis. It appears very much as if some of the parties look upon an "agreement" as something binding only on the other parties to it, or as affording an opportunity for secret cutting a while before they find it out and meet their reduced rates.

NEW PUBLICATIONS

Report on Bridging the Mississippi River between St. Paul, Minn., and St. Louis, Mo.; by Gen. G. K. Warren, Washington. Government Printing Office.

The wise Oxenstiern is said to have fitted his son to be his successor, by sending him on a tour to observe with how little wisdom the world was governed.

This handsome octavo volume of 232 pages, 31 diagrams and 29 maps, filled with the most valuable information, gives an apt illustration of the wisdom of the Swedish Chancellor.

In August, 1866, the War Department instructed General Warren, one of its ablest engineer officers, to examine and report upon such plans of bridging the upper Mississippi as would offer the least obstruction to the navigation of that river.

While these examinations were being made, Congress authorized, and different railroad companies constructed, no less than fifteen bridges across the Mississippi, costing in the aggregate over twenty millions of dollars.

Now that these bridges are built and in use, General Warren's report appears, and in it we find this somewhat startling statement:

"The conclusion, then, which the whole of this investigation and report sustains is, that high bridges with wide spans are the only kind that will, with certainty, accommodate the railroads and at the same time preserve the navigation."

As thirteen out of the fifteen bridges are "low" bridges, with swing spans and comparatively short fixed spans, the unavoidable inference is that they will not with certainty "preserve the navigation," and hence may have to be removed at some future day and be replaced by "high" bridges.

Indeed, General Warren, in Chapter IV. of his report, reviews all these bridges one by one, points out the defects, and indicates where the future high bridges, which are to take their places, should be located.

Certainly it seems singular that while the executive branch of the government was collecting data to show how the bridges ought to be built, the legislative branch was authorizing, and companies were actually constructing bridges—to "accommodate" their own convenience.

Some light may be thrown on what is possible on the Mississippi by the case of the Cincinnati & Newport Bridge built by the Pennsylvania Company over the Ohio at Cincinnati.

This bridge was built in defiance of the opinions of the officers of the War Department, but when nearly complete its construction had to be stopped and its plan changed to meet the Department's requirements. The same thing might have to be done on the Mississippi if any bridge turned out to be a formidable obstruction to navigation. The fact of their being finished and in use, and having cost great sums, will not exempt them from the operation of the clause with which every charter ends: "But nothing shall prevent the removal of this bridge if it shall be found to be an obstruction to navigation." The builders of bridges take their own risks.

The Mississippi River bridge at Quincy, Ill., was built under the act of Congress of July 25, 1866, making it permissive to build either a high or a low bridge, but laying down such restrictions upon a high bridge as would have increased its cost over that of a low bridge by some half-million of dollars. Can it be doubted which plan the railroad company would select?

So strong are the economic reasons in favor of low bridges, that even General Warren himself, when acting as engineer of the bridge at Rock Island Arsenal, did not hesitate to adopt a low-level crossing. So much easier is it to say what ought to be done than it is to do it.

General Warren, referring to the Quincy bridge, says: "The present conditions"—of the swing spans and adjacent 250-ft. fixed spans—"are somewhat of compromise upon the facilities for steamboats and rafts, and illustrate the difficulty, if not impossibility of making a low draw-bridge meet all the requirements of river navigation The difficulties noted here are small compared with what are developed by the same irreconcileable demands elsewhere, where the current is more rapid."

The fact is that no complaints have ever been made of the Quincy bridge, owing to the gentleness of the current. It is also a fact that that gentleness of current was acquired at considerable cost to the bridge company, by making the bridge low enough, and not contracting the actual waterway of the river by embankments.

Where a different policy was pursued, as at the two next bridges below, at Hannibal and Louisiana, Mo., of embanking the natural flow of the river, at a considerable saving of first cost over iron spans, the current is so rapid at high water that these bridges are, General Warren says, "very dangerous obstructions." This has been proved to be true by the results.

At Hannibal, a tug-steamer and barges lost control and

were hurled against one of the 250-ft. spans, causing its destruction and the loss of the boat and barges, with ten or twelve lives.

At Louisiana, the river took the matter in charge itself, and in 1876, which was the first year of high water after the completion of the bridge, it scoured out the second pier from the east abutment, carrying with it two spans of the bridge.

Economic engineering is not always the least expensive in the long run.

We direct the attention of our professional readers to this valuable report, which shows the most careful and accurate research, and does great credit to its author.

The New York Legislative Investigation of Railroad Practices.

The Hepburn Committee, as it is called, held sessions in Rochester on Saturday and Monday last, especially to investigate the complaints of the Rochester millers, Messrs. Hepburn, Baker and Lowe being present. Gen. John H. Martindale conducted the examination for the millers, Mr. Simon Sterne, who conducted it in New York in behalf of the Board of Trade and Transportation, not being present. The New York Central Railroad was represented by H. P. Laning as counsel, the Erie by Judge Shipman.

James A. Hinds, a miller, and Secretary and Treasurer of the state millers' association, was the first witness. He testified: For two years past the millers here have been losing money, and we attribute it to unfavorable freight rates; some mills depend on Western wheat, but the rates from Milwaukee here are more than from Milwaukee to New York; we had to pay a higher rate to New York, and lost our jobbing trade in competition, as the West had fifty cents a barrel the advantage; I can give no other reason for the loss of trade; our location is favorable, and former customers say they prefer to deal here, but the lower rate from the West prevents; on April 16, 1879, I paid 21 cents per 100 lbs. for wheat from Milwaukee to Rochester, and about 20 cents to 25 cents on to New York; the reported rate then from Milwaukee to New York on flour was, all rail, 34 cents; the difference on a barrel of flour would be 36 cents against Rochester; the difference against Rochester on a car load of flour from Milwaukee would be $43.20 at that time. I do not know that millers here have special rates on the Central or Erie; we can mill cheaper in Rochester than they can in Milwaukee, as mills and power cost less; give us *pro rata* rates, and I do not want to change my location as a miller. I have had a reduction of 5 cents on the Erie.

James M. Whitney testified:—The discrimination in freight rates against Rochester is ruinous, as far as the New York trade is concerned; trade is ruined, and I see no reason for it except freight discrimination; I understand that Western millers have better rates than our millers; when I was in the business there were 11 mills on Brown's race; now there are six; we used to figure that the 21 mills in the city produced 250 barrels a day; they run more in the winter now than when I was in the business; I think there is not half so much wheat now grown in Western New York as there used to be; it is principally consumed by country millers, who sell at home; the place is avoided by large manufacturers because of this discrimination in freight rates.

M. F. Berstel testified: I am a miller and have been in business here since 1874; in 1874 the business was profitable; I bought largely in the Rochester market of New York wheat and sold in New England, Southern New York and Eastern Pennsylvania; the year ending with June, 1877, was the last profitable one; the year I came here our mill made 70,000 barrels; this year it will foot up about 29,000; I think the falling off was about the same as last year; the main reason is that we are not able to compete with Western millers; one reason is that the wheat grown here is not good, and we can't buy Western wheat profitably at the present freight rates; have known through rates to Utica from Milwaukee to be lower than the combined rates from Milwaukee to Rochester and from Rochester to Utica; we could compete with the West if the rates were the same.

C. F. Pond, miller, testified: We cannot deliver grain or flour East as low as they can from the Western states; millpower here costs $30,000, while out West it costs $60,000; yet discriminations have killed our milling business; we do not sell in New York now on commission; we sell at the first chance; we cannot afford to hold flour now because of the fluctuations of rates, which imperil profits; under such circumstances, it is only a question of time when the local milling business will be killed, except for the local market.

Charles Salmon, shipper, said: We cannot even afford to bring superior Genesee wheat here and ship it to Liverpool when Minnesota millers could get so much lower rates for the same distance.

On Monday, Joseph Farley, connected with the Whitney Mill, testified as follows: On the first of last May the New York Central road carried flour from Buffalo to Albany for 8 cents a barrel, and we were charged 15 cents and Buffalo millers 20 cents; through rates are so low that I am unable to compete with Western millers; I think the New York roads, are, in a measure, to blame for this.

W. W. Mack was sworn and testified: I have lived here since 1865; was in the machinery business from 1866 to 1867; have had practical experience in regard to freight rates from the West as compared with rates from Rochester; they used to make us a great deal of trouble; I used to ship from here to New York and from New York to Cincinnati at a less rate than to Cincinnati direct from here; I saved 14 cents on 100 pounds by so doing; the freight rate from here to New York was 60 cents per 100, and by shipping to St. Louis *via* New York I saved 18 cents on 100 pounds; I do not know what roads carried the goods.

The Farmers' Alliance presented an address to the committee, stating the grievances of the farmers, which concludes as follows: "We demand that there be no discrimination in regard to individuals or locations, but that rates be as nearly as possible in proportion to the service rendered as regards citizens of this state; and as to the travel and traffic of other states, we demand that the rates charged over the roads of this state, added to the expense incurred in bringing them to or conveying them from our roads, always be something more than is charged our own citizens over our own roads; in demanding this much, we are sure we are right, and it is in no spirit of hostility or threat that we avow our determination to contend for it until it is conceded to us, or until we enforce it by legislation. We disclaim all partisan designs in our organization, but believe it our duty to vote only for such law-makers as concede the justice of our demands. We believe the mechanical and all the industrial interests of the state are identical with the agricultural, and that the present policy of the railroads will unite us in a common effort to secure just treatment."

The committee resumed its sessions at Saratoga, Aug. 20. From the Erie road there were present for examination President H. J. Jewett, Assistant to the President George R. Blanchard, Auditor Stephen Little, with Judge William D. Shipman as counsel. William H. Vanderbilt, of the New York Central & Hudson River road was present, with John E. Burrill and Chauncey M. Depew as counsel. The Chamber of Commerce and Board of Trade were represented by Simon Sterne, Thomas P. Fowler, and John S. Myer, who conducted the examination.

Mr. Sterne called for information in relation to the working of the American Transfer Company and Standard Oil Company as to rates paid for through and local traffic, etc.

Mr. Depew stated that all the information obtainable had been given; that Mr. Rutter on previous examinations had furnished all information called for by questions at that time.

Mr. Sterne offered in evidence some testimony taken in the case of the commonwealth of Pennsylvania against the Pennsylvania Railroad Company.

Judge Shipman objected to the reading of the evidence, as no opportunity was given for cross-examination, that it was taken in another state, etc. Mr. Sterne stated, as the substance of the testimony, that the witness was induced to make rebates, etc., and that the American Transfer Company was another name for the American Standard Oil Company.

Mr. Sterne then offered in evidence circulars embodying the joint action of the joint executive committees of various railways in this and other states, comprising 28 companies, at a meeting held Aug. 13, in which they unite in giving up special contracts and special rates, which were marked as exhibits. Mr. Sterne also offered in evidence comparative statements of the construction and capital stock, floating and funded debt of the Erie Railway, from its organization in 1851 down to 1878. Also, comparative statements compiled from the State Engineer's reports from 1854 to 1869 of the Hudson River Railway; from 1854 to 1869 of the New York Central Railway, and from 1870 to 1878 of the New York Central & Hudson River Railway; also, articles of incorporation of the New York & Erie Railway, and certificates of incorporation of the reorganized company which has succeeded the Erie Company, showing upon what basis the reorganization was made, and in what particulars the present organization differs from the first. Also, the new consolidated mortgage of the New York, Lake Erie & Western Company, all of which, with papers presented by Mr. Depew, previously called for, were received and marked as exhibits.

Mr. Vanderbilt was then sworn and examined by Mr. Simon Sterne. He testified that he was President of the New York Central & Hudson River Railroad Company; had been connected with railroads about fifteen years, his first connection being with the Harlem road; he identified the lease of the Harlem to the Hudson River road; the capital stock of the Harlem was originally nine millions; another million was subsequently issued, which, under the terms of the lease, was to be expended in improving that road; could not say as to what part of it was so expended; he thought the dividend on stock was about 8 per cent.; had been connected with the Harlem road since 1864, before the lease to the New York Central; from that time to 1873, at the time of the lease, was Vice-President of the Harlem; his duties at that time were to look into the internal affairs of the road; did not have much railroad experience, and had to learn; knew more about the Hudson River at that time than the Harlem; after the consolidation, from 1869 to 1873, was Director on both roads; had nothing to do with the lease of the Harlem to the New York Central; other officers knew more about it than he did; he was a director, but had not much experience; the other people were experienced, and it was left to them; the lease was desirable on the part of both companies; profitable to both—to the stockholders of the Harlem and of the Central—from the increased facilities in New York city.

Mr. Sterne's questions here sought to show that through traffic to Albany by way of the Harlem was entirely suspended by the lease.

Mr. Vanderbilt stated that some business was done by the connection with the Boston & Albany road; that the receipts from milk and local traffic were equal to the payments under the lease; that the facilities obtained by the lease at the Forty-second street depot were valuable; the lease of the Harlem was part of the scheme to benefit all traffic going into New York; his father was the controlling spirit at that time; the witness was merely secondary; the lease was intended to benefit both roads; could not tell the value of the property exempted from the operation of the lease; we own one-fourth of the stock; he individually holds probably one-eighth. Mr. Vanderbilt could give no estimate of the value of the property exempted from the operations of the lease. When questioned as to the cost of maintenance, etc., he said prices of labor are lower now; they paid in 1873 from 10 to 11 shillings per day for trackmen, and now pay $1; they build their own locomotives; did not know the value of locomotives in 1873; perhaps they were 50 per cent. dearer than now; cars are perhaps 50 per cent. lower now; rails have gone down largely; the highest paid for labor in 1873 was 11 shillings; have paid $2 in freight-houses, but never on the track; pay $1 now, and to some 90 cents; box freight cars are worth $460; did not know what platform cars bring, should think $350; never bought any milk cars, and cannot tell what they are worth; they are made in the company shops; could not give an estimate; he had to depend on the estimates made by the master car-builder.

Mr. Blanchard, of the Erie Road, here made a statement in regard to milk cars, saying they cost twice and one-half what ordinary freight cars cost—from $1,150 to $1,200.

Mr. Vanderbilt, in reply to a question as to the milk traffic on the Harlem Road, said the amount a car costs does not enter into computation when rates are fixed; the milk rate has been fixed for years; try to consult the feelings of milk producers, shippers, and consumers; there are very few complaints as to the rates; the witness had met committees of milk dealers for the past year. The rate was uniformly 60 cents a can from 1865 to 1878; the milk train had earned as much as $1,300 or $1,400 a night.

Mr. Vanderbilt further testified that the lease of the Harlem was not made to stop competition, the Harlem being unable to compete with the Hudson River on account of its heavy grades. The stock of the Spuyten Duyvil & Port Morris connecting line, 6½ miles, was $937,000, and the road cost that amount, chiefly from the enormous prices paid for right of way; did not think it could be built much cheaper now. It was rented at 8 per cent. on the stock.

Mr. Sterne questioned Mr. Vanderbilt at some length in regard to the pooling arrangements between the great lines running to the sea-board, and the alleged distinction made against New York in favor of Philadelphia and Baltimore. Mr. Vanderbilt admitted that the object of the pool was a fixture of rates and a division of traffic, but denied that it ended competition, as the railroads had to compete with lake and canal transportation, by which they are controlled and governed. The trunk lines represent vast properties, and should be protected and receive proper remuneration for the capital invested. Therefore it has been deemed expedient—I have never consented to it until lately, but am heartily in favor of it—that three or four gentlemen of national reputation look over all those matters and decide them, and take it out of the hands of the 400 or 500 people who are making rates—take it all away from them, and leave it with those gentlemen to manage these properties. He thought that foreign vessels made distinctions against New York and in favor of other ports, and attributed the increased traffic at Baltimore and Philadelphia to increased facilities and to the fact that owners of vessels have to pay no port charges. There is also a distinction made in freights not intended for export, the freights from Chicago being 3 cents more to New York than to Baltimore, and 2 cents more than to Philadelphia. If rival lines bring freights to New York they lose what they gain by Philadelphia and Baltimore freights. The New York Central has the advantage in grade over the Erie, though the difference is not as great as between the Hudson River and the Harlem. The local business of the Pennsylvania road, Mr. Vanderbilt thought, was much larger than that of the Central. No books are now kept by the Central to show what the local traffic is as distinguished from way traffic. The local traffic has increased since the consolidation of the Hudson River and the New York Central. Eastern bound freights going to Boston bring 5 cents a hundred more. All business done with Boston is left to Eastern connections. The Central could insist on rates to Boston, but never has done so. The New York Central draws freight from the West 200 miles more to reach the sea-board than the Pennsylvania or Baltimore & Ohio. The latter roads are both largely owned by the states which chartered them, and enjoy facilities for business which are denied the New York Central road in the city of New York. It is to the interest of the New York Central road to keep up the Erie Canal as a competing line with trunk lines in other states. If the New York Central and Erie roads do not meet competition from other states by every means in their power, then the state should compel them to do so.

The Committee adjourned until the next day.

New York State Farmers' Alliance.

The annual meeting of this organization in Syracuse, N. Y., Aug. 20, was chiefly devoted to hearing and considering a long report on railroad discriminations, which recommended an appeal to legislative action to remedy abuses.

The committee appointed to present an address to the public on the subject of railroad transportation, presented a report which recommended the laying aside of party preferences and supporting only such candidates for office as by their records have shown their fidelity to the interests of the people rather than to railroad monopolists. The power of great railroad corporations for good or evil is untold, the report said, and their cunning management, by which they gather powers which monarchs do not possess, must be ended before they prostrate the thrift and industries of the country. The Legislature owes a duty to the people who create it, and it is for the people to create such a Legislature as will protect their interests. The address was received with applause and unanimously adopted.

Resolutions in accordance with this address were adopted, among which were the following relating to railroads:

"*Resolved*, That with due regard for all vested interests, we will steadfastly labor to bring the railroads of this state to a proper responsibility to the public, that the rights of the citizens, be they rich or poor, shall be respected upon public highways; that in the transportation of freight, as of passengers, the charges shall be to all citizens alike, and in no case shall more be charged for a short than a longer distance.

"*Resolved*, That contributions by railroads to defray election expenses of candidates, or to party campaign funds, and the granting of free passes, are demoralizing and dangerous to the public interest, and should be prohibited by law."

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

St. Louis, Kansas City & Northern, special meeting, at the office in St. Louis, Oct. 14, to vote on the proposed consolidation with the Wabash Company.

Wabash, special meeting, at the office in Toledo, O., Oct. 14, to vote on the proposed consolidation with the St. Louis, Kansas City & Northern Company.

Boston, Hoosac Tunnel & Western, annual meeting, in Saratoga, N. Y., Aug. 30.

Railroad Conventions.

The *International Road-Masters' Association* will hold its annual convention at Niagara Falls, N. Y., Sept. 6.

The *Association of Railroad Claim Agents* will hold its third annual meeting at the Girard House, Philadelphia, beginning Monday, Sept. 10, at 10 a. m.

The *Master Car-Painters' Association* will hold its tenth annual meeting in Detroit, Mich., beginning Sept. 10, at 10 a. m.

The *National Association of General Passenger and Ticket Agents* will hold its regular semi-annual convention at Louisville, Ky., Sept. 16.

The *General Time Convention* will hold its regular fall meeting at the Windsor Hotel, New York, Oct. 9.

The *Southern Time Convention* will hold its fall meeting at Barnum's Hotel, Baltimore, Oct. 15.

Dividends.

Dividends have been declared as follows:

Atchison, Topeka & Santa Fe, 3 per cent., from the earnings of the six months ending June 30, payable Aug. 25. This is the company's first dividend.

Bald Eagle Valley (leased to Pennsylvania Railroad Company), 2½ per cent., semi-annual, payable on demand.

North Pennsylvania (leased to Philadelphia & Reading), 1½ per cent., quarterly, payable Aug. 27.

Mail Service Extensions.

New mail service has been ordered over railroad lines as follows:

Walla Walla & Columbia River, service ordered from Walla Walla, Wash. Ter., to Wallula, 32 miles.

Foreclosure Sales.

The *Central Railroad of Long Island* was sold in New York, Aug. 18, under foreclosure of the first mortgage for $1,000,000, and bought by Mr. E. P. Fabbri, of New York, representing the holders of a majority of the bonds. The road is about 24 miles long, from Flushing, N. Y., to Bethpage; it was built in 1872 and in 1874 was consolidated with the Flushing & North Side and some smaller companies, forming the Flushing, North Shore & Central Company. The road is leased to the Long Island Company.

The *Georgetown Railroad* was sold Aug. 5 under foreclosure of the second-mortgage, and bought for $14,900 by G. M. Dilley, of Round Rock, Tex., as agent for the bondholders. The sale was made subject to the first-mortgage bonds, of which $13,800 are outstanding. The road is 10 miles long, from Georgetown, Tex., to the International & Great Northern at Round Rock, and cost about $52,500 to build, last year.

ELECTIONS AND APPOINTMENTS.

Burlington, Monmouth & Illinois River.—Mr. John F. Wallace is Chief Engineer.

Eau Claire.—At a meeting held in Eau Claire, Wis., last week, the following officers were elected: President, O. H. Ingram; Vice-President, Wm. A. Rust; Treasurer, Aug. Huyssen; Secretary, L. E. Latimer.

Florida Central.—Mr. Wm. M. Davidson, General Freight and Ticket Agent, has been appointed Superintendent also.

Grayville & Mattoon.—The United States Circuit Court has appointed Mr. Henry L. Merrill, of Evansville, Ind., Receiver, in place of E. B. Phillips, relieved at his own request.

Indiana, Bloomington & Western.—The following are announced as officers of this company, which took possession of its road (the main line of the Indianapolis, Bloomington & Western) on Aug. 8: President, C. P. Williams, Albany, N. Y.; Secretary, Alfred Sully, New York; Treasurer, J. B. Blossom, New York; General Manager, B. S. Henning, Indianapolis.

Manhattan.—The organization of this company, which works the New York elevated roads, has been completed, and is now as follows: President, Wm. R. Garrison; Vice-President, Nathan Guilford; Secretary, Franklin Worcester; Treasurer, John E. Body; Executive Committee, Cyrus W. Field, Benjamin Brewster, A. H. Barney, Jose F. Navarro, Horace Porter; General Manager, John Baird; General Ticket Agent, Henry Redmond; Auditor, Benjamin Frink; Master of Machinery, Allan Stirling; Purchasing Agent, Morris K. King. Of these Messrs. Garrison, Body, Navarro, Porter, Baird and Stirling are from the Metropolitan, and Messrs. Guilford, Worcester, Field, Brewster, Barney and King from the New York Elevated Company.

Mobile & Montgomery.—Mr. W. H. Thomas has been appointed Master Mechanic, in place of James Parker, resigned. Mr. Thomas was recently on the Philadelphia & Erie Division of the Pennsylvania Railroad.

Pittsburgh, New Castle & Lake Erie.—Mr. G. A. Woerth has been appointed Superintendent and Engineer, in place of Mr. Joseph Ramsey, Jr., resigned. Mr. Woerth was formerly Assistant Engineer on the Low Grade Division of the Allegheny Valley road.

"Railroad Engineer" of the Department of the Interior.—Mr. Aurin B. Nichols, Civil Engineer, of Philadelphia, has been appointed "Railroad Engineer" in the office of the "Auditor of Railroad Accounts," Department of the Interior, Washington, D. C.

The duties of the position include the inspection of all railroads under government supervision. Mr. Nichols is an engineer of extensive experience in railroad construction and maintenance of way. His earlier training was in the engineer corps of the Pennsylvania Railroad Company. He occupied the position of engineer-in-charge of the erection of Machinery Hall and the Main Building of the Centennial Exhibition, and for several years past has been connected with the office of Wilson Brothers & Co., civil engineers and architects, Philadelphia, whose service he leaves to accept the position offered him by the government.

St. Louis & San Francisco.—Mr. R. G. Rombauer has been appointed Superintendent of this company's Joplin Railroad, in place of E. H. Brown, resigned.

Wabash and Cleveland, Columbus, Cincinnati & Indianapolis Pool Commissioner.—Mr. Robert Harris, General Manager of the New York, Lake Erie & Western, has been appointed Commissioner of this pool, and has issued the following circular:

"The undersigned has assumed the duties of Commissioner under the agreement between the Wabash, Cleveland, Columbus, Cincinnati & Indianapolis, and Indianapolis & St. Louis railroad companies, for pooling the earnings of their roads; and has appointed N. J. T. Dana, Assistant Commissioner. The office of the Assistant Commissioner will be at St. Louis, where all statements and accounts should be sent. Communications for the undersigned may be addressed to No. 187 West street, New York."

PERSONAL.

—Mr. Henry T. Rogers, one of the originators of the telegraph system and for many years Superintendent or Manager of some of the earlier telegraph companies, died at his residence in Baltimore, Aug. 20, aged 69 years.

—Gen. George B. Wright, Receiver of the Indianapolis, Bloomington & Western road for several years past, and since the sale of the road General Manager for the Purchasing Committee, has issued the following circular on retiring from the management of the property:

"My connection with this road in its financial and operating management ceases this day. The road and property has been sold and transferred to a new company, under the decrees of the United States Circuit Court for the Southern District of Illinois and the District of Indiana. Major B. S. Henning has been duly appointed General Manager thereof, and will assume control immediately. I take pleasure in bearing testimony to your uniform courtesy and kindness to me personally during nearly five years of my connection with the road, and sincerely thank each and all of you for the faithful manner in which you have performed your several duties. I bespeak for the new management the same devotion and interest in the road and its prosperity that has characterized the past. I retire from the position with my best wishes for all of you, and trust the future of the road, and your own, may be marked with increased prosperity and success."

—Captain Henry Sheppard, President of the Gulf, Western Texas & Pacific Company, and for many years connected with the Morgan steamship and railroad lines, died at Indianola, Tex., Aug. 10, after a long illness.

—Mr. Franklin B. Gowen, President of the Philadelphia & Reading Company, has returned from Europe. He reached New York in the steamer Arizona, Aug. 18, and at once went to Philadelphia.

—Mr. John Minshull, Master Mechanic of the New York & Oswego Midland road, last week jumped from a steam handcar, which was running at a high speed, to avoid a collision. He was so badly injured that it was not considered advisable to take him to his home in Middletown, and on Aug. 19 he died at the little village of East Branch, N. Y., close to the place where he was hurt. He had held his late position four years and was highly esteemed by the other officers of the road, and also as a man by his employés and neighbors.

TRAFFIC AND EARNINGS.

Delaware Fruit Traffic.

Peach shipments continue heavy, and up to Aug. 19 the Delaware Railroad had carried 1,630 car-loads, or more than three times as many as for the whole season last year. Shipments are still below those of 1877, however.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Seven months ending July 31:				
Cairo & St. Louis	$129,908	$127,516	I. 2,392	1.9
Chi., Bur. & Quincy	7,548,447	7,299,257	I. 249,190	3.4
Cleve., Mt. Vernon & Del.	213,521	206,456	I. 7,065	3.4
Int. & Great Northern	778,368	677,508	I. 100,860	14.9
Paducah & Elizabethtown	156,783	179,368	D. 22,585	12.6
Five months ending May 31:				
Louisville & Nashville	$2,124,523	$2,096,792	I. $27,731	1.3
Net earnings	795,118	746,640	I. 48,478	6.5
Month of July:				
Cairo & St. Louis	$22,320	$19,507	I. $2,813	14.4
Cleve., Mt. Vernon & Del.	28,738	27,377	I. 1,361	5.0
Int. & Gt. Northern	94,075	92,398	I. 1,677	1.8
Paducah & Elizabethtown	27,290	26,977	I. 313	1.2
St. Louis, Alton & Terre Haute, Main Line	91,350	74,846	I. 16,504	22.1
First week in August:				
Chi., Mil. & St. Paul	$156,000	$115,467	I. $40,533	3.5
Mo., Kansas & Texas	63,564	57,838	I. 5,726	9.6
St. Louis, Iron Mt. & So.	101,800	85,242	I. 16,558	19.4
Wabash	112,435	115,053	D. 2,618	2.3
Week ending Aug. 8:				
Great Western	$79,390	$75,212	I. $4,178	5.6
Week ending Aug. 9:				
Grand Trunk	$160,912	$146,038	I. $14,874	10.2

Coal Movement.

Coal tonnages for the week ending Aug. 9 are reported as follows:

	1879.	1878.	Increase.	P.c.
Anthracite	540,716	522,251	18,465	3.5
Semi-bituminous	76,425	.....	.....	.....
Bituminous, Pennsylvania	36,444	.....	.....	.....
Coke, Pennsylvania	21,965	.....	.....	.....

From Jan. 1 to Aug. 9, the *Engineering and Mining Journal* reports the total production of anthracite as follows:

1874	10,962,647	1877	11,671,265
1875	9,525,702	1878	9,199,031
1876	8,982,858	1879	14,843,245

The Delaware & Hudson Canal Company's auction sale last week showed a decrease of 10 to 15 per cent. in prices of all sizes of coal. The present prospect for prices of anthracite is not encouraging to coal producers, and buyers evidently are not afraid of an increase, as they are in no hurry about purchasing.

Low prices of anthracite injure the bituminous trade, but it has been somewhat helped by the increasing demand for coal for ocean steamers.

Petroleum.

Stowell's *Petroleum Reporter* gives the production of the Pennsylvania oil regions for July as follows, in barrels of 42 gallons:

	1879.	1878	Increase.	P. c.
Production	1,714,517	1,283,865	430,652	33.5
Shipments	1,625,035	1,330,454	294,581	22.1
Stock, July 31	7,330,132	5,031,600	2,298,532	45.7
No. of producing wells	11,468	9,766	1,702	17.4

The total shipments of crude and refined reduced to crude for the month were, by railroad, river and pipe:

New York	706,135 bbls.
Pittsburgh	278,930 "
Cleveland	292,924 "
Philadelphia	139,968 "
Boston	85,696 "
Baltimore	57,187 "
Ohio River refiners	20,336 "
Other local points	44,759 "
Total shipments	1,625,035 "

Included in the above shipments there were 212,213 barrels of refined from Titusville and Oil City, which is equal to 318,320 barrels of crude.

Pittsburgh reshipments of refined oil in July were 122,041 barrels east by Pennsylvania Railroad and 782 barrels west.

East-Bound Passenger Rates.

Rates at St. Louis do not remain settled long, in spite of meetings and agreements. The Indianapolis & St. Louis is reported as cutting rates and selling tickets from St. Louis to New York at $19. It is claimed that this is done to meet cut rates from Kansas City made by the St. Louis, Kansas City & Northern and the Wabash.

Chicago Lumber Traffic.

Receipts and shipments of lumber at Chicago for the seven months from Jan. 1 to July 29 are reported as follows, in feet:

	1879.	1878.	Increase.	P. c.
Receipts	651,064,165	517,817,882	133,246,283	25.7
Shipments	366,225,299	305,510,685	62,714,614	20.6

This is, we believe, the largest business for several years.

Crops.

Another light yield of wheat per acre is reported in Nebraska, with an increased acreage. The corn crop is in magnificent condition, and, with ordinary weather for the next two weeks, will be much the largest ever produced in Nebraska.

The Illinois State Board of Agriculture reports an acreage of 2,137,000 acres of wheat in that state this year, and a yield of 42,041,252 bushels—19⅔ bushels per acre. Most of this is winter wheat, and all but a very small part of the winter wheat is produced in the central and southern parts of the state—as far south as the Indianapolis, Bloomington & Western Railroad. This is an extraordinary crop for Illinois, and the aggregate is larger than the Minnesota crop has ever been, and probably as large as the crop of any one state has ever been.

The Kansas State Board of Agriculture reports an area of 1,297,500 acres of winter wheat and 412,000 of spring wheat this year. The increase in winter wheat acreage is given as 22 per cent. since 1878, and of 100 per cent. since 1876. The corn acreage is reported to be 20 per cent. more than last year, and the total acreage under cultivation about 20 per cent. greater—an enormous increase for a single year. The wheat acreage, however, is but about one-fifth of the Minnesota acreage.

Grain Movement.

Receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports for the week ending Aug. 9 have been as follows for the past seven years:

Year.	Northwestern receipts.	—Northwestern Shipments.— Total.	By rail.	P. c. by rail.	Atlantic receipts.
1873	3,926,551	3,769,252	595,031	15.8	3,489,227
1874	4,287,152	3,347,530	1,095,988	32.7	3,100,990
1875	2,924,504	3,125,584	785,771	25.0	4,640,166
1876	3,769,648	3,044,779	1,300,720	42.7	3,061,105
1877	4,940,613	4,285,095	950,575	22.2	3,525,053
1878	6,353,446	4,872,921	1,449,950	30.8	6,153,764
1879	6,271,458	5,588,755	1,870,352	33.3	8,402,315

Heretofore this year, since June, the Northwestern receipts have exceeded those of the corresponding weeks of last year, but for this week ending Aug. 9 they are a trifle less than last year, and 8 per cent. less than for the previous week this year. Until last year, however, they have never been equaled at this time of the year, and rarely exceeded at any time.

The shipments of these markets are 14¾ per cent. larger than for the corresponding week last year, and 16¼ per cent. larger than the previous week. The rail shipments are the largest since June.

The receipts at Atlantic ports this year have never before been equaled. They are 7½ per cent. more than in the previous week, and 34¼ per cent. more than the extraordinarily large receipts of the corresponding week of last year.

Of the receipts at Northwestern markets this year, 49 per cent. was at Chicago, 15.8 at St. Louis, 15.3 at Toledo, 8.4 at Peoria, 7.3 at Detroit, 2.3 at Milwaukee, 1.4 at Cleveland and 0.5 per cent. at Duluth. Four-fifths of the corn went to Chicago and Peoria; but little more than a quarter of the wheat, of which Toledo received 29 per cent., Chicago 23½, St. Louis 23 and Detroit 17 per cent. The aggregate of wheat and of corn shipments is just about the same. It is very different with Atlantic receipts, 77 per cent. of which was wheat. Of the total Atlantic receipts 40.7 per cent. was at New York, 23.8 at Baltimore, 22.9 at Philadelphia, 6 at Montreal, 5.4 at Boston, 1.1 at New Orleans, and 0.1 per cent. at Portland. Although the aggregate receipts of the seven ports were larger than ever before, the New York receipts were larger in both of the two previous weeks and in one other week this year. They have not been so small a proportion of the total before, since the first half of May. Both Philadelphia and Baltimore receipts are extraordinary. Neither had ever been equaled in any previous week of any year. This is due probably to the marketing of the winter wheat of the Ohio valley, which is largely on lines controlled by the Pennsylvania and the Baltimore & Ohio, and does not go to any intermediate markets to be sold and shipped where all the trunk lines can compete for it.

For the week ending Aug. 19 (Tuesday) receipts and shipments at Chicago and Milwaukee were:

	Receipts.	Shipments.
Chicago	2,957,555	3,963,918
Milwaukee	163,900	122,700

Receipts are about the same and shipments considerably greater than in the preceding week, but in the corresponding week of last year the receipts were 60 per cent. greater.

For the same week receipts and shipments at Buffalo were:

	Receipts.	Shipments.
By water	1,381,430	1,498,595
By rail	1,022,500	1,773,186
Total	2,403,930	3,271,781

For the same week ending Aug. 19, the preceding week, and the week ending Aug. 20 last year, receipts at the four leading Atlantic ports were:

	Week ending Aug. 19, '79.	Aug. 12, '79.	Aug. 20, '78.
New York	3,763,196	3,499,029	3,488,821
Philadelphia	1,198,500	1,980,300	891,800
Baltimore	900,980	1,504,371	1,056,173
Boston	668,035	349,285	409,725
The four cities.	6,530,711	7,332,985	5,846,519

The total for the last week is 11 per cent. *less* than in the previous week, and 11⅜ per cent. *more* than in the corresponding week of last year. New York received 57.6 per cent. last week, 47.7 the preceding week, and 59.7 per cent. the corresponding week of last year. The last week 1,904,654 bushels, or 50.6 per cent., of the New York receipts were by rail.

RAILROAD LAW.

Liability for Defective Foreign Cars.

In Baldwin against the Chicago Etc. Railroad Co., the Iowa Supreme Court held that the doctrine of the liability of an employer to his servant, does not render a railroad company liable to its employés for an injury which occurs by reason of the fact that the cars of other companies, transported over the road in the ordinary course of its business, were not equipped with all practical appliances to insure the safety of those handling them. Conceding that it may be the duty of the company to provide its own cars with all practicable appliances for safety, it is bound to receive and transport for other companies such of their cars as are in ordinary use upon other roads, and cannot be charged with negligence by one of its own employés in so doing.

Liability of Company for Defective Machinery.

In Johnson against the Richmond & Danville Co., appeal from Guilford Court, the North Carolina Supreme Court held: Where there was a defect in a connecting-rod, which was unknown to the plaintiff, a brakeman on a railroad, but which his employers could have ascertained by having the machinery inspected, and they did not cause it to be inspected, and under the strain the rod broke and caused an injury to the plaintiff while in discharge of his duties as brakeman, the railroad company is responsible.

Condemning Land.

In Love against the Carolina Central Co., in the North Carolina Supreme Court, on appeal from Gaston Court, the case arose from a petition filed to condemn land for the purpose of a station built by the company. *Held*, That the order appointing commissioners should properly direct them not only to assess the *value* of the property sought to be condemned, but the *quantity* of land necessary for the purposes of the company, and this though the defendant filed no answer denying the plaintiff's allegation as to the quantity of land necessary.

Maintaining Order in Stations.

In Johnson against the Chicago, Rock Island and Pacific Co., the Iowa Supreme Court held:

1. If a person acts in a disorderly way in a station, it is the right and duty of the station-agent, upon his refusal to leave the waiting room, to remove him, using no more force than may be necessary for the purpose.

2. The company's waiting-room is for the accommodation of incoming and outgoing passengers, and not a place of public resort; and if one enters therein, not a passenger and having no business therein, it is his duty to leave when requested to, whether disorderly or not.

THE SCRAP HEAP.

Railroad Equipment Notes.

The Boston & Albany blacksmith shop at Springfield, Mass., is making 800 axles for use on new cars.

The New York, New Haven & Hartford shops have turned out a new engine for use on passenger or fast freight service. The boiler is 48 in. diameter of barrel with 176 2-in. tubes 11 ft. 7 in. long; fire-box 58 in. long, 42 in. wide and 58 in. deep; cylinders 17 by 22 in., with steam-ports 16 by 1⅛ in., exhaust-port 16 by 3⅜ in., valves with ⅞-in. outside lap, $\frac{3}{16}$-in. inside lap and 5 in. throw of eccentrics; driving-wheels

5 ft. 2 in. diameter. The boiler is fed by two pumps and one injector, and the tender-tank holds 2,350 gallons.

The St. Charles (Mo.) Car Co. is building 100 freight-cars for the Kansas City, St. Joseph & Council Bluffs road.

The Terre Haute (Ind.) Car Works are building 250 freight-cars for roads in Kansas.

The Pittsburgh, Ft. Wayne & Chicago shops in Ft. Wayne, Ind., are to build 400 box-cars for that road and 700 for the Pittsburgh, Cincinnati & St. Louis.

The Duquesne Engine Works, in Pittsburgh, are building a side-wheel steamboat for the Central Railroad, of Georgia. It is 175 ft. long by 30 ft. beam and 7 ft. hold, with a low pressure engine having a cylinder 24-in. diameter and 8-ft. stroke.

H. K. Porter & Co., at Pittsburgh, are building a light locomotive to go to South America.

Josiah M. Clark, at Howell, Mich., has just sent a lot of light cars for the use of the road-supervisors to the Cincinnati Southern road, and is now filling an order from New York for hand and push-cars for export.

The Pennsylvania Railroad shops at Altoona have just received an order to build 1,500 box cars in addition to the 800 already under construction for the Car Trust of Philadelphia.

The car works of G. M. & J. K. Lockars, at Bloomsburg, Pa., were burned down on the night of Aug. 11, throwing 100 men out of employment. The loss is $20,000, about half covered by insurance.

The Chicago & Alton has put on its Kansas City line a new Horton reclining-chair car of very handsome finish. It is 60 ft. long, has 48 Horton chairs, with wash-rooms and a small smoking-room, and is mounted on 42-in. paper wheels.

The Hinkley Locomotive Works in Boston are building two freight engines and one shifting engine for the Boston & Lowell road.

The Boston & Lowell shops are to build four passenger coaches and a number of box cars for use on the road.

The Michigan Car Co., at Detroit, has just finished 250 cars for the Chicago & Alton, and is building 800 box cars for the Michigan Central and 300 for the Chicago & Northwestern.

Bowers, Dure & Co., at Wilmington, Del., have lately completed six passenger cars for the Atchison, Topeka & Santa Fe and 11 for the Central, of New Jersey.

Iron and Manufacturing Notes.

The Chancery Court at Richmond, Va., has made an order directing Gen. Joseph R. Anderson, Receiver of the Tredegar Iron Works, to turn the property over to the officers of the company. The order was granted at the request of the bondholders.

The Glendower Iron Works, at Danville, Pa., are running on an order for iron rails for the Atchison, Topeka & Santa Fe road.

The Chattanooga (Tenn.) Iron Co. is running its furnace on Bessemer pig iron for the Roane Iron Company.

The Southern Pipe and Pump Works, at Chattanooga, Tenn., are full of work, and are building a new brick factory 50 by 220 feet in size.

The rolling mill at Bellaire, O., has shut down for necessary repairs, which will take about three weeks.

Riehle Brothers, of Philadelphia, are putting up two of their self-adjusting track scales, of 100,000 lbs. capacity, for the Pittsburgh & Lake Erie road.

It is said that the Spuyten Duyvil Rolling Mills, in New York, which have been idle for a long time, are to be started up on iron rails, a large contract having been secured for a Kansas road.

The American Bolt Co., at Lowell, Mass., is running full time and making 75 tons of bolts and nuts a month.

Arms, Bell & Co., at Youngstown, O., are building a large addition to their bolt works.

The Etna Iron Co. has put its Alice furnace, at Ironton, into blast.

The Haywood Rolling Mill, at Palo Alto, Pa., has been started up by the Philadelphia & Reading Coal & Iron Co. under a lease.

Bridge Notes.

Clarke, Reeves & Co., of Phœnixville, Pa., have taken a contract for an iron bridge over Broad street and York road, in Philadelphia, on the new connecting line between the Germantown Branch and the North Penn & Bound Brook Division of the Philadelphia & Reading road. It will have two spans, one of 121 and one of 124 feet.

Jones & Benners, of Philadelphia, have taken contracts for two iron bridges over streets in Jersey City, and for a freight shed 465 by 120 ft., in Jersey City, all for the Pennsylvania Railroad.

The New York Bridge Co. has on hand contracts for an iron highway bridge at Cranford, N. J., to be 84-ft. span; another, of 60-ft. span, at Eastchester, N. Y., and two small ones in Oneida County, New York.

The Louisville Bridge & Iron Co. has the contract for the bridges on the new extension of the Waco Branch of the Houston & Texas Central road.

George Fleming & Sons, of St. John, N. B., have just completed an iron bridge carrying the road over the Intercolonial Railway tracks at the station in that city.

Thomas Williamson, of Houston, Tex., is to build the trestle-work on the extension of the Waco Branch of the Houston & Texas Central to Eastland.

Prices of Rails.

The *Iron Age* says of steel rails: "Manufacturers would doubtless be willing to take orders at quoted rates if they were not so full, but as they have from three to six months' work on hand already, they are unwilling to anticipate the future, as the cost of material, etc., may change very materially in the course of a few months. We have authority for stating that $48 to $50 has been paid in several recent transactions, although manufacturers quote $44 to $46 at mill, but are 'so full that they are not taking orders.'"

Iron rails are quoted as $39 to $40 per ton at mill, with sales of 5,000 tons reported, and negotiations for several heavy orders.

Old iron rails are $25 to $25.50 per ton in Philadelphia, and $26 in Pittsburgh, with good demand. No old steel rails on the market at present.

Nut Coal.

"Tobacco is a vile thing for the health," said the brake man, as he looked into the caboose, "and I have given up chewing altogether." "Sho!" said the conductor; "Since when?" "Since—next Monday," answered the brakeman, as he climbed up on the top of the next car.

Student, fresh from college, to conductor: "I wish to get on the penultimate car." Conductor: "We nave no peanut car; you can take the smoker." Mutually disgusted. *Rochester Express.*

When a car or two are off the track, the business of the average passenger is to stand around and make suggestions to the train-men. The less he knows about railroading the more numerous are the ideas he offers. After it is all over and the train goes on, he has to get hold of the conductor or a brakeman and prove how they "could have snaked her back on the track in five minutes," if they had only taken his advice.

All sorts of animals, even down to a cat, have been killed by railroad trains, but the first goat we ever knew to be run over was struck by an Erie train in Paterson, N. J., the other day. He is supposed to have been trying a few fish-plates and washers as a change from his usual lunch of old tomato-cans and circus posters.

How He Will Get Even with the Railroad.

There is no doubt as to how Congressman Daggett stands on the railroad question. He is sound. Conversing with a *Chronicle* reporter the other day, he said:

"The railroad people are the pettiest kind of gougers. They begin to show their hand at Omaha. In the first place, the fare from Omaha to San Francisco is a hundred dollars and *fifty cents*, and everybody who buys a ticket stops to growl and ask what the fifty cents is for. They are told that the half-dollar is simply the profit made on each passenger. I guess the hundred dollars comes nearer the profit than the half-dollar.

"Then they grab your trunk and shove it behind a grating to be weighed. You can't see the scales at all, and you have no idea about the weight until a man sings out eight dollars and thirty cents overweight, and you have to pungle the money or your trunk don't go. Now, my trunk was so small an affair that I could throw it over my shoulder with one hand, but they ran up the weight to 260 pounds. Probably it *did* weigh that much when a two hundred pound baggage master was sitting on it.

"Well, I paid because I hadn't but two minutes to fight; and at Ogden the baggage villian still pursued me, and I paid some more extra weight. It weighed more at Ogden—probably because a heavier man sat on it, or else the rarefied air affected the scales. Then coming over the mountains there were some extra charges for ropes. But I'll get even—I'll get even.

"You see I am entitled, as a member of Congress, to 600 volumes of Agricultural Reports, 200 Surveyor-General's Reports, 500 Patent Office Reports, and several thousand other volumes of an equally exciting character."

Reporter.—"Are these reports ever read?"

Mr. Daggett, M. C.—"Oh, yes; the printers who set 'em up are obliged to read 'em. Well, these are sent on to my address free, and the railroad people have to carry 'em for nothing, under their postal contract with the United States government—the biggest government on earth, sir. Then I'll give one copy of the agricultural romances to old Farmer Treadway, and a copy of the geological fictions to Professor Stewart. All the rest I need myself."

Reporter—"For what purpose?"

Mr. Daggett, M. C.—"Why, you see, I'll put my frank on 'em and ship 'em to Zack Chandler in Wisconsin, and he'll frank 'em and send 'em back, and I'll frank 'em again and redirect 'em to him; and these books—two tons of 'em, by G—d!—will go back and forth over that blasted road, free, until the next session of Congress, when I'll get hold of some more and start them along, too. I propose to keep the books in motion until they wear out, and then I'll sue the d—d company for damages. Oh, I'll sicken 'em of the extra weight dodge. Don't you forget it."

Every morning the Congressman goes down to the depot and pokes about among the freight for his books. They have not yet arrived, but he expects them every day.—*Virginia (Nev.) Chronicle.*

Cylinder Cock Connections.

The Springfield (Mass.) *Republican* claims that the idea of connecting the cylinder cocks with the cab, so that the engineer could open or close them without going forward or getting out of the cab, originated with Mr. Cyrus Worthy, Depot Master in that city. We do not know that any one else claims it, but it is a thing that might occur to several persons, each of whom would be entitled to credit for the invention.

Government Contracts.

Proposals for work on dredging and other improvement of rivers and harbors are called for as follows, plans, specifications, etc., in each case being obtainable at the office where bids are to be received:

By Col. J. N. Macomb, United States Engineers, at No. 1,619 Chestnut street, Philadelphia, Pa.:—

Removing fast rock from Christiana River, Wilmington, Del., bids received until Aug. 25.

Dredging channel of Delaware River at Mifflin Bar, bids received until Aug. 27.

Dredging in Schuylkill River, bids received until Aug. 26.

Removing shoals in Mispillion Creek, Del., bids received until Aug. 26.

Dredging in Cohansey Creek, at Bridgeton, N. J., bids received until Aug. 26.

Constructing channel through Cherry Island flats, Delaware River, bids received until Aug. 23.

Removing mud, gravel and small stone from Elizabeth River, in Elizabeth, N. J., bids received until Aug. 29.

Removing sand, gravel, mud and stone from channel of Rahway River, in New Jersey, bids received until Aug. 29.

Building a crib and dikes and dredging in Shrewsbury River in New Jersey, bids received until Aug. 29.

By Major Wm. P. Craighill, United States Engineers, at No. 70 Saratoga street, Baltimore, Md.:—

Deepening channel through shoals on James River, in Virginia, bids received until Sept. 6.

Continuing work on closing New Inlet, Cape Fear River, in North Carolina, bids received until Sept. 6.

Dredging at Queenstown, Md., bids received until Aug. 30.

Dredging at Onancock, Va., bids received until Aug. 30.

By Capt. Charles B. Phillips, United States Engineers, Citizens' Bank building, Norfolk, Va.:—

Dredging in harbor of Norfolk, Va., and approaches, bids received until Sept. 12.

Dredging in Currituck Sound, in North Carolina, bids received until Sept. 12.

Dredging in North Landing River, in Virginia and North Carolina, bids received until Sept. 12.

Four-Wheeled Grain Cars.

The Detroit *Post and Tribune* of Aug. 19 says: "A train of 18 new-fashioned grain cars, built by the Michigan Central at its own shops, went west from Jackson on Friday. The length is only about two-thirds that of an ordinary freight car, but they are intended to carry the same weight of freight, 20,000 lbs. They are constructed with only four wheels, instead of eight, the usual number for freight cars, and are supplied with a railing for the safety of brakemen, extending along the entire length of the running board on the roof of the car."

He Found a Seat.

I always have good luck in getting a seat on the train when there's a rush, but some others are not so fortunate. They don't seem to know how to "squat" at the precise moment, or just the language to use toward a pale, small man who has a whole seat by himself. Everybody at the depot said the night train for Petoskey would be jammed, and so it was, but our party got seats nevertheless. After pulling out of the station for the all-night ride through the silent pines, with no chance that a single person would stop off before daylight, I looked up and down to see if anybody had drawn the ticket which entitles the holder to a seat on the wood box.

Somebody had. He was a patient looking man, but there was a bad bulge behind his ears—a sort of warning that he might put up with being knocked down, but that the victor musn't sit on him afterward. Six seats in the centre of the car were occupied by six men only—one man and his baggage to each seat. It didn't make any difference that the rest of us were sitting three and four to a seat, these six hogs held the key, if there was any key to hold.

The man on the wood-box seemed to be waiting for some one to encourage him, and I winked with both eyes at once. Perhaps he took it that I had a bowie-knife and would stand by him in a fight, for he walked up to hog No. 1 and said:

"My friend, can't you spare me half this seat?"

"No—can't do it—I'm on my way to camp-meeting at Petoskey," was the gruff reply.

"My friend can you spare me half this seat?" asked the wood-box man of the second hog.

"No, sir, I can't, sir!" was the determined reply.

Hog No. 3 pretended to be asleep and was passed. Hogs No. 4, 5 and 6 all replied that they were bound to the camp-meeting at Petoskey, and could not, therefore, afford to be half-way white. The wood-box man looked over to me for instructions, and somehow or other he seemed to think that I advised him to go for hog No. 3 who was really the meanest-looking one of the six, and who still pretended to be fast asleep. Catching him by the shoulder, and giving him an awful shake, my friend inquired:

"Can I have half this seat?"

"No, sir!" shouted the indignant hog. "I represent a whole church and am on my way to Petoskey to camp-meeting!"

"Now you look a here!" said the wood-box man, as he reached over and secured two terrible grips on the hog's body; "I don't represent nobody nor nuthin', and 'stead of bein' on way to camp-meeting, I 'spect I'm on the high road to blazes, but you want to yell out mighty quick which half of this seat you didn't pay for!"

It wasn't thirty seconds before the man on the high road to blazes had all the seat, the other refusing to sit beside him. After a minute he shared it with two boys and several satchels, and looking over to me he kindly said:

"Much obliged for havin' yer shootin' iron ready. Soon's your wife gits to sleep I'll pass over some of the best gin mortal man ever tried to swaller."—*M. Quad, in Free Press.*

A Train Wrecker.

Early on the morning of Aug. 6, the engineer of a freight train on the Lake Shore road saw some ties piled up on the east-bound track near Angola, N. Y., as he was passing on the west-bound track. He at once stopped his train and the crew removed the obstruction. Subsequently, one Henry Locke asserted that he had seen some tramps put the ties on the track; that they had driven him away and he had afterward tried to flag a passenger train near the place, to warn it of the danger. His story did not bear investigation, however, and he was arrested on suspicion, and afterward confessed that he had himself placed the ties, hoping to be able to stop a train and secure a reward. He was committed for trial.

Bridge of Old Rails.

The new iron bridge to carry the carriage road over the railway at the Intercolonial station is about completed, and presents a very fine appearance. With the exception of the hand railing, which is made of cast-iron posts and gas pipe, the structure is built entirely of old rails. The following is a general description of it, taken from the engineer's specification:

The clear span is 100 feet; the depth of trusses, 12 feet: width over all, 42 feet.

The trusses are of the form known as the "bowstring." There are two roadways, each 13 feet wide, with sidewalks outside of trusses, each 5 feet wide, protected with iron hand-railing.

The top chords of the outside trusses consist of two large T rails (weighing 70 lbs. to the yard), and the bottom chord of 2 U rails, weighing 56 lbs to the yard. The centre truss consists of three large T rails on top and three U rails in the bottom chord. The diagonals between chords are U rails secured to chords with a wrought-iron fastening, riveted into the U, surged down and fitted with bolt and nut.

The floor beams are made of T rails, riveted flange to flange, and secured to chords with angle iron.

The floor consists of longitudinal floor timbers covered transversely with 3-inch planks.

On the arrival of the Vice-Regal party on Wednesday, the bridge was subjected to the severest test possible, a crowd of people being packed on both floor and arches, but the structure stood the test admirably. The bridge was designed by Mr. P. S. Archibald, Resident Engineer of the Intercolonial Railway. The work was erected under contract with Messrs. George Fleming & Sons, who have spared no pains to make it first class in every particular. We understand this is the first iron bridge above 20 feet span ever built in this province. William Rainnie, Esq., was inspector of the work, and Mr. James Thomson superintended the abutments.—*St. John (N. B.) Sun, Aug.* 13.

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—This company has bought property in Atchison, Kan., on which it will build a large new freight house and a large elevator, which are needed for its increasing business.

Atlantic & Great Western.—A dispatch from London, Aug. 15, says: "The Atlantic & Great Western Reconstruction Trustees announce that they will issue certificates for prior lien bonds to the amount of $2,500,000, bearing 6 per cent. interest, to enable the Trustees to complete the foreclosure. The price of the new certificates will be 90. Messrs. Lewis and Tyler are coöperating relative to this issue."

Black Band & Rogersville.—This company has been organized to build a line about five miles long from Rogersville, in Tuscarawas County, O., eastward to Black Band on the Marietta, Pittsburgh & Cleveland road. The capital stock is to be $40,000.

Boston & Albany.—This company has been trying a cheap excursion from Springfield and other towns along the line to Nantasket Beach, a popular resort near Boston. The fare for the round trip from Springfield, 98 miles of railroad each way and a short steamboat trip from Boston to the beach, was fixed at $1.30, and the success was great. Forty-seven cars were taken, all crowded, no less than 3,360 tickets being sold in Springfield alone and over 900 at other places where the trains stopped, so that over 4,000 persons were carried. The trains were run through on time and returned with a very little unavoidable delay, and the experiment was so successful that more excursions of the same sort are to be given.

Bucksport & Bangor.—The lease of this road to the European & North American will expire on Oct. 1, and it is said that the company will then resume possession. There

is some talk of changing the road to 3-ft. gauge. It extends from Bangor, Me., down the east side of the Penobscot River to Bucksport, 18 miles.

Burlington, Cedar Rapids & Northern.—The grading on the extension of the Iowa City Division is now completed from Iowa City, Ia., west by south to Webster, 30 miles, and track is laid for about 20 miles of that distance. Contracts have been let for the grading of a section of 10 miles from Webster west to What Cheer, to reach the coal mines there.

Burlington, Monmouth & Illinois River.—Work is now in progress on this road, and it is expected that the grading from Monmouth, Ill., to London Mills, 30 miles, will be finished next month. The grading from London Mills to Peoria will be pushed as fast as possible.

Canada Central Extension.—The contractor, Mr. James Worthington, reports that the surveys for the whole line to Lake Nipissing are nearly completed. The right of way is cleared out from Pembroke, Ont., to Rock Cliff, 55 miles; the grading is done for 44 miles from Pembroke; the track laid 30 miles and ballasted for 20 miles. He has two locomotives, 35 cars and 500 men at work on the line.

Canadian Pacific.—The contract for the section of 100 miles from Winnipeg, Manitoba, northwest, has been awarded to Mr. John Ryan, of Brockville, Ont., the contractor who received the first award having refused to file the required security. The contract price is variously stated, but appears to be about $6,000 per mile for the grading and masonry.

Chicago, Milwaukee & St. Paul.—The track on the Viroqua Branch is now laid to Viroqua, Wis., 33 miles southward from the junction with the La Crosse Division at Sparta. The work of finishing up is in progress, and regular trains will run to Viroqua Sept. 1, when the road will be formally opened.

Chicago & Northwestern.—This company now has under contract 140 miles of its Chicago & Dakota line, which is to run from the Winona & St. Peter at Tracy, Minn., westward. This will carry the road beyond the James River in Dakota, and is to be finished by the close of the year. Grading is well advanced, and tracklaying has been begun at Tracy. The contractors are D. L. Wells & Co., of Milwaukee.

Cincinnati, Hamilton & Dayton.—It is stated that the English holders of Cincinnati, Hamilton & Indianapolis bonds have agreed to the settlement recommended by the arbitrators to whom the matters in dispute were referred.

Cincinnati, Mt. Airy, Venice & Liberty.—This road is to be a narrow-gauge line for suburban travel, running from Cincinnati to Liberty, 17 miles. A contract for its construction has been let to Mr. P. S. McTague, of Lancaster, Pa., who is to begin work at once.

Cincinnati, Sandusky & Cleveland.—The bondholders' committee announces that holders of over $1,000,000 of the $1,100,000 second-mortgage bonds have joined in the agreement and funded their coupons as required. Holders are urged to fund as soon as possible, in order that the receivership may be terminated and the road restored to the company.

Cincinnati Southern.—On the lower or southern end of this road the work is progressing well. Ballasting is in progress on the track already laid.

On the northern end the rails are now laid to the Tennessee line, 35 miles southward from Somerset and 193 miles from Cincinnati. It is probable that trains will be allowed to run south of Somerset next month, at least as far as the coal mines, where a large quantity of coal is ready for shipment.

At the annual meeting of the old Common Carrier Company, which operated the completed portion of the road up to last May, a resolution to dissolve the company and wind up its affairs was voted down, and the organization will be continued.

Clarksburg, Weston & Glenville.—This road is now completed from the Baltimore & Ohio at Clarksburg, W. Va., southward to Jane Lew, 18 miles, leaving only seven miles of track to finish it to Weston. It follows the valleys of Lost Creek, Hacker Creek and the West Fork of Monongahela, and has two heavy grades, one of 182 ft. and one of 142 ft. to the mile. It passes through some very good country and follows nearly the main line of road used for the traffic of a large section of country now without a railroad. Weston will be the terminus for a time, but it is intended to build southward 27 miles to Glenville, in Gilmer County, as soon as possible. There is talk also of a line from Clarksburg to connect with the Pittsburgh Southern.

The road is of 3-ft. gauge, laid with 30-lb. rails, and has two engines from H. K. Porter & Co., of Pittsburgh, and two passenger and several freight-cars from Billmeyer & Small.

Cleveland, Tuscarawas Valley & Wheeling.—The new extension of this road from Uhrichsville, O., to Bridgeport on the Ohio River, opposite Wheeling, W. Va., will be 57 miles long. About three-fourths of the grading, including three tunnels, is finished. A fourth tunnel will be 1,500 feet long, and 1,000 feet are completed. Work on the grading is now actively in progress, though the contractors report some delay on account of difficulty in finding men to work.

Columbus, Washington & Cincinnati.—A compromise has been agreed upon by which the late foreclosure sale will be confirmed without further opposition, and possession will pass to the bondholders. They, on their part, agree to assume certain floating liabilities.

Davenport & Northwestern.—The deed transferring this road has been filed for record, and the essential part of it is as follows:

"Whereas, the holders of 33,591 shares of the stock of the said Davenport & Northwestern Railway Company, being all of said stock, except 609 shares, have authorized and empowered the board of directors of this company to grant, sell and convey the railway of this company, with all its property, rights, privileges and corporate franchises by deed of conveyance to the Chicago, Milwaukee & St. Paul Railway Company; and

"Whereas, the board of directors of the said Davenport & Northwestern Railway have empowered and directed the President and Secretary of said Davenport & Northwestern Railway to make and execute and deliver to the said Chicago, Milwaukee & St. Paul Railway Company a deed of conveyance of all and singular the railway property rights, privileges, with the franchise thereto appertaining of the said Davenport & Northwestern Railway Company;

"Now, therefore, the said party of the first part—the Davenport & Northwestern—in consideration of the premises and of the sum of $1,750,000 to it duly paid, or agreed to be paid, by the party of the second part, hath granted, bargained and sold, etc., to the Chicago, Milwaukee & St. Paul Company, and its successors and assigns, the railway heretofore known as the Davenport & Northwestern Railroad, from its terminus in Davenport, to Fayette, and the branch from Eldridge Junction to Maquoketa, in all a distance of about 250 miles, including all railways, right of way, roadbed and grade, all depot grounds, lands, tracts, bridges, viaducts, culverts, fences and all other structures, depots, station-houses, freight-houses, shops, tools, rolling stock and all other property, as well as right, privileges and corporate franchises, to have and to hold, subject nevertheless to the payment of the sum of $1,750,000, owing by said party of the second part to the party of the first part, as purchase money, with the interest thereon, and to the payment of certain 3,000 bonds for $1,000 each, bearing even date herewith, and bearing interest at the rate of 5 per cent. per annum, payable semi-annually, and the principal payable forty years from date, in accordance with the terms of the mortgage of even date herewith made by the party of the second part to the Farmers' Loan and Trust Company as trustee, for securing the same, 1,750 of which 3,000 bonds are to be used and applied for securing and evidencing the aforesaid sum, $1,750,000 of purchase money."

At the same time there was filed a mortgage on the road to secure an issue of $3,000,000 bonds, which are to be used, $1,750,000 in payment for the road, and the remaining $1,250,000 in putting it in good order and extending it from Fayette, Ia., northward to Ft. Atkinson, about 25 miles.

Denver & Rio Grande.—The Atchison, Topeka & Santa Fe Company on Aug. 15 delivered possession of this road to the Receiver appointed by the United States Circuit Court. While the Receiver is said to be personally friendly to the Santa Fe, his instructions from the Court are to work the road independently and to treat all connecting lines on equal terms, showing no special favors.

This Receiver, it will be remembered, is not the one appointed by the Colorado Circuit Court, but is a new appointment made in the suit brought to set aside the lease of the road to the Santa Fe, to hold and manage the road until the Court decides to whom possession should rightfully be given.

Denver Pacific.—It is reported that parties interested in the Kansas Pacific have secured a controlling interest in the bonds of this road, which are chiefly held in Holland.

Eastern Extension.—Track on this road is now laid from the junction with the Pictou Branch at New Glasgow, N. S., eastward 30 miles to Antigonish. The work of ballasting is in progress.

Eau Claire.—Work is to be begun at once on this road, which is entirely a local freight line, intended to connect the mills in and near Eau Claire, Wis., with the track of the Chicago, St. Paul & Minneapolis road.

Elevated Railroads in New York.—While the residents of New York are enjoying their summer holidays at the watering places or in the country, the elevated railroads are preparing to meet the rush of business next month. Everywhere the work is rapidly advancing, and in many places is nearly or quite finished. Along the line of the Third Avenue road the stations are receiving the finishing touches, and all the platforms will soon be covered by ornamental roofs. At Twenty-eighth street a new station has been erected and is now in use, though not fully completed. At Chatham Square, which will be the terminus of this road when the Second Avenue road takes possession of its down-town track, the necessary changes are being made as fast as possible, without hindering the running of trains. Two new tracks, perfectly level, have been placed between the old ones, which are upon a slight grade. The changes, of course, will make necessary the erection of a new and larger station, the girders for which have already been placed in position. The Battery station, which will be the largest and best appointed upon the line, will be entirely finished within three weeks. The platforms and corridors, which have been in use for several weeks, are being painted and decorated, and a second of the three permanent stairways is nearly ready for use. The large waiting-rooms, twenty feet in height, will be thrown open to the public on Sunday morning. In anticipation of large crowds here on Sundays, four ticket offices have been provided, two of which will be in use at all times, and the others as often as occasion requires. The temporary passage-way to the Coney Island pier will be replaced by a permanent covered one.

On the Ninth Avenue Branch the work of replacing the old tracks by new ones is being rapidly pushed forward, and the old structure will be entirely removed before the beginning of next year.

On the Metropolitan road trains are now running as far as One-hundred-and-fourth street, and within another month will run to One-hundred-and-twenty-fifth street. Between these points progress has necessarily been very slow, as at the point where the route crosses from Ninth to Eighth avenue the grade of the ground is so steep that the tracks had to be carried fifty-six feet above the street. In addition to this, the foundations were often sunk thirty feet before a firm base could be found. The structure is nearly complete to the Harlem River, but the tracks are not yet laid, and only the girders of the stations are in position. On the Metropolitan East Side Branch the foundations are all laid, and the structure is complete as far as Twenty-fifth street. Work will shortly be begun upon the joint station at Chatham Square, and it is hoped that trains can be run to Sixty-fifth street early in November.—*New York Tribune.*

Ft. Wayne, Muncie & Cincinnati.—A long contest as to the rental to be paid for use of the track and yards of the Ft. Wayne, Jackson & Saginaw road in Ft. Wayne, Ind., has been settled by arbitration. The arbitrators, Messrs. Charles Paine, of the Lake Shore, and C. E. Perkins, of the Chicago, Burlington & Quincy, have decided that the rent for two years past and for the future should be reduced about one-half from the amount claimed.

Indiana, Bloomington & Western.—The formal transfer of the main line of the Indianapolis, Bloomington & Western road has been made, and is announced in the following circular, dated Aug. 8:

"The railway and other property of the Indianapolis, Bloomington & Western Railway Company having been sold under decree of the Circuit Court of the Southern District of Illinois and District of Indiana, will hereafter be operated and managed by a new company, formed by the purchasers at said sale, under the name of Indiana, Bloomington & Western Railway Company."

Intercolonial—The trouble with the old employés of the Rivière du Loup Division has been settled, and trains are running without obstruction. The claims of the men are to be submitted to arbitration.

Lake Shore & Michigan Southern.—At a meeting of the board in Saratoga, Aug. 14, it is stated that an arrangement was made for securing control of the Chicago & Canada Southern road, at an outlay of about $750,000. This action was probably taken to prevent the road from falling into other hands, as it is not a valuable property.

Lehigh Valley.—This company is building a new roundhouse to hold 50 engines at Easton, Pa., and also an erecting shop 80 by 225 feet in size. A new foundry will be begun shortly. When these buildings are finished the old round-house will be torn down to make room for an extension of the machine shop.

Marquette, Houghton & Ontonagon.—During July this company carried over its road 138,660 gross tons of ore, the heaviest business ever done in one month. The iron-ore tonnage for the season up to to July 30 was 284,496 tons.

Marquette & Mackinac.—It will be remembered that the Legislature of Michigan in 1873 and 1875 made grants of the state swamp lands on the Upper Peninsula to any one who would undertake to build a railroad from Marquette, on Lake Superior, to the Straits of Mackinac. Under the law a contract was made with a corporation known as the Marquette, Sault Ste. Marie & Mackinac Company, and that company let the contract for building the road to Dr. Laman, of New York, a well-known contractor. No work has yet been done on the road, however, and the Board of Control of State Lands, at a meeting held in Lansing, Aug. 13, resolved that "having been advised that no step had been taken by the Marquette, Sault Ste. Marie & Mackinac Railroad Company for the construction of their road, it is ordered that W. L. Wetmore, President of said company, be notified that at the next regular meeting of the board, to be held Aug. 27, action will be taken relative to annulling the said contract, and declaring the same forfeited as far as any rights of said company to any lands appropriated in aid of said railroad by the state are concerned."

Dr. Laman has worked very hard in the interest of the road, but has not been able to raise the money required. The grant includes some valuable land, but whether the road will pay when built is an open question. There is a very scanty population on the line, and it would be subject to water competition for through business more than half the year. It would certainly be valuable to the state.

Milwaukee, Lake Shore & Western.—This company announces the completion of its Northern Extension to Marion, Wis., seven miles from the late terminus at Clintonville and 164 miles from Milwaukee. Regular trains began to run to Marion Aug. 18, and business is now done to that point.

Montreal, Portland & Boston.—The extension from St. Lambert, P. Q., to Longueuil is completed, and trains began to run over it Aug. 18. It is four miles long, and gives the road an outlet to the St. Lawrence. A steam ferry will connect Longueuil with Montreal.

Negotiations are reported in progress for the lease of the road to the Southeastern Company, of Canada. The two roads could be worked together very well.

Nashua & Lowell.—It is reported that negotiations are in progress for a lease of this road to the Concord Railroad Company, or, if a lease should not be practicable, for a joint operation of the two roads under a pooling contract. Good authorities, however, think any arrangement with the Concord Company somewhat doubtful.

It is also reported that negotiations have lately been renewed for a lease of the road to the Boston & Lowell Company.

New York City & Northern.—A new contract for the completion of this road has been let to Costigan & Baldwin, of Philadelphia, and they have already begun work at several points. The contract requires the road to be ready for use by Nov. 1 next.

New York, Lake Erie & Western.—The nine miles of second track between Cameron Mills and Adrian, N. Y., is to be completed about Nov. 1, though the contractors now complain of a scarcity of labor. The work is under the charge of Mr. R. Bell, Civil Engineer at Elmira.

In the matter of the appeal of the company from the valuation of some of its property made by the New Jersey Commissioner of Railroad Taxation, the New Jersey Supreme Court has decided to reduce the valuation of the leased Paterson, Newark & New York road from $750,000 to $545,433 and that of the Newark & Hudson road from $500,000 to $355,056, making a reduction of $1,748 in the tax. No reduction is made in the valuation of the Long Dock and Jersey City property.

The McHenry bankruptcy has stirred up a good deal of talk about the past relations of that gentleman with the Erie, and numerous statements have been made, which contain little or nothing that was not known before.

Owensboro & Nashville.—At a recent meeting of the stockholders, it was voted to authorize the issue of $1,750,000 bonds to complete the road. Also to empower the directors to contract with the Nashville, Chattanooga & St. Louis Company to build the unfinished portion of the line and to sell the bonds to be issued.

The road (in which the Nashville, Chattanooga & St. Louis lately bought a controlling interest) is completed from Owensboro, Ky., to Owensboro Junction on the Paducah & Elizabethtown, 35 miles, and is graded to Adairsville, 44 miles further. Thence to Nashville two lines have been surveyed, one by Springfield, 37 miles, and one by Cross Plains, 43 miles. The latter route, though the longest, is estimated to cost much less than the other.

Pennsylvania Railroad, in Maryland.—The crossing laid over the Cumberland & Pennsylvania Railroad near Cumberland, Md., remains in place, but last week officers of that road had a new track laid over it, rendering it useless. This new track was afterward taken up by a party of citizens from Cumberland, and there was much excitement in the town. Probably nothing more will be done until the question as to the right to make and use the crossing is settled in the courts.

Philadelphia & Atlantic City.—A fatal collision between a passenger and a freight train on this road occurred at Clementon, N. J., Aug. 14, five persons being killed. The evidence at the Coroner's inquest tended to show wofully loose management, the freight train being run by a new conductor, who knew very little of his business and, though much behind time, having no orders further than a notice that several extra trains would be sent out that afternoon. The Coroner's jury brought in a verdict censuring Assistant-Superintendent J. S. Verts for mismanagement and the appointment of incompetent subordinates. Mr. Verts was arrested to await the action of the Grand Jury, and the train-men present at the accident were held in bail as witnesses.

Philadelphia & Reading.—One of the piers at the Delaware River terminus at Port Richmond, Philadelphia, is being extended 400 feet out into the river, making it 600 feet long and 100 feet wide. When completed, the Philadelphia Elevator Company intends to build on it a grain elevator with a capacity of 1,000,000 bushels.

Portland & Ogdensburg, Vermont Division.—It is reported that the Mercantile Trust Company, of New York, has secured possession of a majority of all the securities, and that arrangements are being made for a reorganization, which will leave the control of the road with the preferred bondholders.

Raleigh & Gaston.—During the past year this company has built in Raleigh, N. C., a new freight house 200 by 30 feet, with an office 18 by 36 feet. At the repair-shops a two-story brick store-house 57 by 27 feet, with iron roof,

LOCOMOTIVE RETURNS, MAY, 1879.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	Number of miles operated	Number of locomotives in service	MILEAGE. Total	MILEAGE. Average per engine.	MILES RUN TO Ton of coal	MILES RUN TO Cord of wood	MILES RUN TO Pint of oil	Average No. of freight cars hauled	Average cost per freight car per mile, cents	COST PER MILE IN CENTS FOR Repairs	Fuel	Stores	Miscellaneous	Engineers firemen and wipers	Total	AVERAGE COST OF Coal per ton	Wood per cord
Allegheny Valley, River Division*	139	35	82,989	2 371	42.56	...	27.70	21.9	0.632	4.19	2.40	0.40	.....	5.71	13.20	$	$ .....
Low Grade Div†	190	17	31,902	1,877	33.14	.....	19.77	21.50	0.759	3.62	3.22	0.59	.....	5.93	13.33	.....	.....
Atlantic & Great Western, 1st and 2d Divs	228	81	241,638	2,983	40.00	.....	18.85	16.90	.....	3.79	4.95	0.40	0.63	5.79	15.56	1.87	2.61
Third and Fourth Divs	197	52	158,459	3,047	33.19	.....	26.56	15.10	.....	4.34	5.11	0.34	0.65	5.57	16.01	1.62	2.61
Mahoning D'v	88	51	119,165	2,357	41.00	.....	24.86	17.10	.....	2.90	4.14	0.31	0.48	5.53	13.36	1.60	2.61
Atlantic & Gulf	343	20	56,006	2,800	...	55.93	21.08	.....	.....	6.25	3.12	0.26	.....	7.60	17.23	.....	1.75
Camden & Atlantic	67	13	23,279	1 791	45.53	...	11.30	15.0	.....	5.51	7.06	0.76	.....	....	19.42	3.61	.....
Central Pacific, Western Div.†	128	30	72,925	2,431	45.53	.....	16.41	.....	.....	12.51	11.85	0.52	0.37	7.5	32.75	5.25	6.25
Northern & San Pablo Div.†	158	26	70,501	2,708	32.58	.....	18.22	.....	.....	6.63	16.50	0.48	0 37	7.14	31.12	5.25	6.25
Visalia Div.†	157	12	27,998	2,333	41 23	.....	19.68	.....	.....	2.98	12.97	0.44	0.10	6.32	22.81	5.25	6.25
Tulare Div.†	171	12	26,557	2,213	36.09	.....	15.62	.....	.....	4 15	14.85	0.59	0.25	8.0	27.84	5.25	6.25
Los Angeles, Yuma, San Diego & Wilmington Divs.†	600	26	86,667	3,333	44.46	.....	14.00	.....	.....	2.94	12.04	0.61	0.25	6.21	22.05	5.25	6.25
California Pacific Div.†	178	11	32,371	2,943	43.56	.....	29.01	.....	.....	2.15	12.77	0.37	0.65	6.72	22.66	5.25	6.25
Stockton & Copperopolis†	49	2	5,473	2,587	68.14	.....	24.63	.....	.....	2.80	10.19	0.31	0.35	6.69	20.34	5.25	6.25
Sacramento Div.†	120	36	86,712	2,409	.....	25 57	19.70	.....	.....	5.47	24.44	0.46	0.39	9.01	39.77	.....	6.25
Oregon Div.†	152	6	18,256	3,043	35.26	.....	25.01	.....	.....	2.31	19.51	0.38	0.21	7.50	29.91	5.25	6.25
Truckee Div.†	205	27	65,662	2 432	38.01	28.68	20.90	.....	.....	3.86	17.50	0.39	0.39	8.30	30.44	5.25	6.25
Humboldt Div.†	201	19	50,886	2,676	43.35	.....	20.40	.....	.....	3.66	12.44	0.40	0.43	7.54	24.47	5.25	6.25
Salt Lake Div.†	219	27	81,751	3,028	33.66	.....	17.16	.....	.....	4.02	15.83	0.52	0.25	7.00	27.62	5.25	6.25
Chicago & Eastern Illinois‡	153	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cin., La Fayette & Chicago	76	....	34,271	.....	29.59	.....	14.16	.....	.....	2.41	7.79	0.29	.....	5.89	16.38	2.25	.....
Cleve., Col., Cin. & Ind., Col. Div.	138	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indianapolis Div.	203	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati Div.	136	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland & Mahoning Valley	41	6	16,718	2,786	48.31	.....	27.63	9.40	.....	3.65	2.64	0.22	0.90	5.72	13.13	1.14	2.51
Cleveland & Pittsburgh*	225	76	177,532	2,336	51.53	.....	19.97	17.96	0.657	3.16	2.39	0.36	2.03	6.19	14.13	1.05	3.70
Cleveland, Tus. Valley & Wheeling	101	13	37,055	2,920	37.07	.....	18.75	35.00	... ..	5.61	1.98	0.39	.....	5.88	13.16	.....	..
Dela., Lacka. & Western, Bloomsburg Div.‡	80	23	62,981	2,738	.....	.....	28.77	.....	.....	2.41	.....	0.48	.....	4.10	6.99	.....	.....
Eel River	95	....	21,727	.....	66.07	41.16	33 95	.....	.....	2.09	4.62	0.21	.....	3.89	10.81	2.32	2.00
Erie & Pittsburgh*	98	29	73,509	2,535	40.32	.....	21.02	17.40	0.723	1.63	3.76	0.37	1.12	6.14	13.02	1.63	1.63
Green Bay & Minnesota	240	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Houston & Texas Central¶	498	60	146,454	2,441	50.00	49.9	18.00	.....	.....	4.78	6.19	0.39	0.93	6.59	18.94	3.05	2.70
Illinois Central, Chicago Div.‡	365	76	199,833	2,630	38.48	.....	18.97	18.65	.....	4.26	4.13	0.21	.....	5.75	14.35	1.50	3.05
North Div.‡	345	46	101,990	2,217	59.00	.....	18.37	13.03	.....	4.68	4.05	0.20	.....	5.58	14.56	1.50	3.05
Springfield Div.‡	113	9	21,827	2,425	50.53	...	21.21	9.71	... ..	4.55	2.66	0.24	.....	4.90	12.34	1.25	3.05
Iowa Div.‡	291	41	104,097	2,539	34.91	.....	19.98	13.55	.....	3.51	3.52	0.21	.....	5.86	16.80	2.30	5.65
Indianapolis, Cincinnati & La Fayette	225	43	105,500	2,455	40.28	.....	19.11	.....	.....	4.25	5.24	0.34	.....	5.68	15.41	.....	.....
Jeffersonville, Madison & Ind.	226	42	92,236	2,196	50.40	29.46	15.04	21.25	0.760	3.40	5.11	0.35	1.67	5.47	16.00	2.40	2.15
Kan. City, St. Jo. & Council Bluffs**	247	32	116,330	3,635	52.5	.....	26.60	.....	.....	2.90	5.80	0.30	.....	6.50	15.30	2.75	4.00
Kansas Pacific¶	75	73	207,576	2,844	30.03	.....	13.85	.....	.....	6.16	10.59	0.34	.....	6.38	23.47	3.10	4.59
Lake Shore & Mich. So., Buffalo Div.‡	....	89	199,114	2,237	39.48	59.77	22.70	.....	.....	3.51	6.98	0.39	.....	5.72	16.54	2.60	5.69
Erie Div.‡	....	113	260,821	3,308	35.96	.....	27.60	.....	.....	3.09	6.72	0.28	.....	5.61	16.32	2.27	5.43
Toledo Div.‡	....	85	183,789	2,162	27.27	68.03	21.61	.....	.....	3.22	6.75	0.30	.....	5.57	18.87	3.08	5.08
Mich. Southern Div.‡	....	205	433,546	2,084	38.49	60.41	23.37	.....	.....	4.14	8.06	0.26	.....	5.76	18.16	3.10	4.63
Little Rock, Miss. River & Texas	100	4	7,206	1,802	.....	68.00	16.00	.....	.....	7.87	2.36	0.61	1.71	8.23	20.78	.....	1.50
Louisville & Nashville, First Div.††	332	56	119,686	2,137	35.93	.....	14.35	17.24	1.000	4.33	5.84	0.27	1.23	6.73	18.50	2.13	2.38
Second Div.††	200	34	73,617	2,165	35.49	.....	15.10	15.53	1.160	3.51	5.39	0.33	1.67	6.32	17.22	1.87	2.62
Memphis Div.††	131	15	40,903	2,727	42.20	.....	17.53	10.83	1.780	3.39	7.42	0.39	1.64	5.74	18.58	3.11	2.30
Nash. & Decatur Div.††	122	16	40,252	2,516	29.46	.....	13.48	16.05	1.340	3.52	7.72	0.42	1.60	6.05	19.31	2.20	3.10
South & North Alabama††	189	27	69,955	2,590	42.96	.....	18.27	13.04	1.320	4.05	4.32	0.33	1.31	5.90	15.61	1.70	3.42
Marquette, Houghton & Ontonagon	98	24	26,925	1,122	43.50	.....	21.10	63.23	.....	1.15	9.59	0.46	...	5.77	16.97	4.50	.....
North Cent., Elmira & Can. Divs.	147	46	103,183	2,243	36.83	.....	23.81	.....	.....	4.00	5.03	0.50	.....	5.73	15.26	1.80	2.08
Pennsylvania, New York Div.‡‡	120	113	325,540	2,881	36.64	.....	11.19	.....	.....	4.00	8.30	0.70	.....	.....	13.00	3.00	4.80
Amboy Div.‡‡	154	42	85,245	2,030	53.48	.....	20.83	.....	.....	11.10	5.70	0.40	.....	.....	17.20	3.00	4.82
Belvidere Div.‡‡	103	25	60,350	1,724	39.00	.....	16.34	.....	.....	3.00	7.80	0.60	.....	.....	11.40	3.00	4.81
Philadelphia Div ‡‡	191	140	413,026	2,950	29.21	.....	16.29	.....	.....	4.10	4.50	0.50	.....	.....	9.10	1.20	3.12
Middle Division‡‡	132	103	296,528	2,879	30.79	.....	18.25	.....	.....	4.30	4.10	0.50	.....	.....	8.90	1.20	3.12
Pittsburgh Div.‡‡	228	163	485,902	2,981	28.92	.....	13.98	.....	.....	4.10	4.50	0.50	.....	.....	8.90	1.20	3.12
Tyrone Div.‡‡	107	27	56,993	2,111	21.84	.....	22.62	.....	.....	7.70	5.80	0.40	.....	.....	13.70	1.20	3.14
West Penn. Div.‡‡	174	30	42,546	2,128	38.18	.....	41.32	.....	.....	3.70	3.20	0.3	.....	.....	7.30	1.20	3.12
Lewistown Div.‡‡	56	8	12,366	1,546	28.80	.....	22.52	.....	.....	8.90	4.20	0.40	.....	.....	13.50	1.20	3.13
Bedford Div.‡‡	57	4	8,518	2,130	29.67	.....	31.6	.....	.....	1.80	4.10	0.30	.....	.....	6.20	1.20	3.14
Pittsburgh, Va. & Charleston Div.‡‡	30	5	12,533	2,507	58.70	.....	40.98	.....	.....	0.50	2.00	0.30	.....	.....	2.80	1.20	.....
Pitts., Ft. Wayne & Chi., East. Div.*	371	154	448,433	2,912	44.63	.....	24.53	16.50	0.846	2.75	3.19	0.30	1.37	6.01	13.62	1.42	1.42
Western Div.*	280	114	365,850	3,210	38.90	.....	17.45	23.60	0.591	3.85	3.08	0.38	1.82	5.74	15.42	1.43	1.43
Pitts., Cin. & St. Louis, Little Miami Div.*	197	28	99,960	2,631	47.67	.....	13.92	17.41	0.963	3.86	4.56	0.42	2.67	5.60	17.11	2.10	1.50
P., C. & St. L. Div.*	224	102	228,475	2,230	30.70	.....	20.87	21.17	0.970	8.89	3.13	0.29	2.20	5.60	17.11	0.90	2.05
St. Louis, Iron Mt. & So., Ark. Div	325	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis & San Francisco¶	328	....	75,745	.....	41.20	.....	13.80	.....	.....	2.75	5.07	0.27	.....	5.62	13.71	2.10	1.80
West Jersey‡‡	128	18	39,872	2,215	55.04	.....	24.04	.....	.....	2.70	6.90	0.50	.....	.....	10.10	3.80	4.01

* Five empty cars rated as three loaded ones.
† Switching engines allowed 6 miles per hour; helping engines, actual distance run and 4 miles per hour while waiting trains.
‡ Switching engines allowed 6 miles per hour.
§ Fuel not estimated.
¶ Two empty cars rated as one loaded one.
¶ Switching and work-train engines allowed 6 miles per hour.
** Three empty cars rated as two loaded ones.
†† Switching engines allowed 6 miles per hour; five empty cars rated as three loaded ones.
‡‡ Engineers', firemen's and wipers' wages not included in cost per mile.
The ton of coal is 2,000 lbs., unless otherwise noted; 25 bushels counted to the ton.

has been built; also a lumber storage shed 96 by 34 feet, with iron roof, and a large water-tank for use in case of fire. On the road all the bridges have been repaired, and a roof put on Cedar Creek bridge, which is 505 feet long. Some 600 tons of steel rail have been laid and 250 tons more are now being put in the track. Two new locomotives have been bought, and the shops have turned out a new sleeping car, 10 box and 10 flat cars, and are now building several more.

Rochester & State Line.—Some time ago a contract was made for the completion of this road, the towns and cities on the line which had aided the road agreeing to surrender to the contractor the first-mortgage bonds of the road which they held and to accept stock in exchange. The city of Rochester held $600,000 bonds, which were surrendered, but has not received the stock, and now the City Council has obtained legal opinions to the effect that the stock which the contractor holds, $600,000 of which he is to turn over to the city under the agreement, is not legally paid-up stock, and that the holder is liable to be called on to pay any deficiency. No action has been taken in the matter yet.

St. Clairsville & Northern.—This company has been organized to build a narrow-gauge road from St. Clairsville, O., northward about three miles to a connection with the Wheeling Extension of the Cleveland, Tuscarawas Valley & Wheeling road.

St. Paul, Minneapolis & Manitoba.—This company is offering, through J. S. Kennedy & Co., and Roosevelt & Son, of New York, its first-mortgage bonds secured upon the road and land grant. The issue is to be $12,000 per mile, bearing 7 per cent. interest, and the price is fixed at 105 and accrued interest.

Sioux City & Pacific.—Track is now laid on an extension of the Nebraska Division (the leased Fremont, Elkhorn & Missouri Valley road) from the old terminus at Wisner, Neb., westward up the Elkhorn River to Stanton, a distance of 17½ miles. This extension was opened for traffic Aug. 17.

Southbridge & Brookfield.—This project has been revived, and an effort is to be made to secure the building of the road. A new line is now proposed from Southbridge, Mass., to the Boston & Albany at East Brookfield, for which it is claimed that it is three miles shorter than the route formerly proposed and much less costly to build, while it will accommodate equally well all the local business of any importance.

Spencer.—At a meeting held in Spencer, Mass., Aug. 14, the stockholders voted to issue first-mortgage bonds to the amount of $12,000, bearing 6 per cent. interest, to fund the floating debt. They also voted to approve the lease of the road to the Boston & Albany Company for 10 years. The road is about two miles long, connecting the town of Spencer with the Boston & Albany road.

ANNUAL REPORTS.

The following is an index to the reports of companies which have been reviewed in previous numbers of this volume of the *Railroad Gazette*:

Chicago & Northwestern.

The roads owned and worked by this company at the close of the last fiscal year, May 31, 1879, were as follows:

	Miles.
Chicago & Northwestern and branches (consolidated)	1,174.90
Chicago & Milwaukee (owned, but not consolidated)	85.00
Iowa Division, Chicago, Iowa & Nebraska, Cedar Rapids & Missouri River and Maple River roads, leased perpetually	356.60
Total, Chicago & Northwestern proper	1,616.50
Proprietary roads:	
Winona & St. Peter and branches	406.10
Northwestern Union	62.63
Iowa Midland	68.80
	537.53
Total worked	2,154.03

The line owned was increased during the year by the Carpenterville Extension in Illinois, 0.54 mile, completed Nov. 1, 1878. The Winona & St. Peter had added to its mileage four branches, 75.35 miles in all, as follows: Minnesota Valley, Sleepy Eye to Redwood Falls, 24.40 miles, opened Aug. 5, 1878; Rochester & Northern Minnesota, Rochester to Zumbrota, 24.48 miles, Oct. 5, 1878; Plainview, Eyota to Plainview, 15.07 miles, Oct. 22, 1878; Chatfield, Eyota to Chatfield, 11.46 miles, Dec. 8, 1878. The average mileage for the year of the Chicago & Northwestern proper was 1,616.27 miles; of all lines worked, 2,129.37 miles.

The equipment consists of 377 engines; 3 parlor, 159 first-class passenger, 29 second-class passenger, 69 baggage and express and 15 mail cars; 5,766 box, 754 stock, 1,359 platform, 1,957 ore and 142 caboose cars; 4 business and pay cars, 18 boarding, 14 pile-driving and wreck and 65 dump and ditching cars. It was increased during the year by 8 engines; 1 parlor and 10 first-class passenger cars; 400 box, 150 stock and 251 flat cars, and 1 wrecking car.

The company held from its various land grants 2,192,995.94 acres on May 31, 1879, including 129,166.66 acres under contracts to be sold. Sales and contracts to sell during the year included 73,386.41 acres for $269,860.66, and 243 town-lots for $7,251. The Land Department received from cash sales and advance payments, $117,609.95; deferred payments, $13,684.69; interest, $25,591.11; trespass and stumpage, $653.18, a total of $157,538.93. The country on the line of the road in Minnesota is filling up fast and the government land will soon be all taken up, turning settlers' attention to the railroad lands, sales of which have already begun to increase largely.

The statement of general account is as follows:

Credit:		
Common stock and scrip	$15,109,655.97	
Less amount owned by company	120,958.48	
	$14,988,697.49	
Preferred stock and scrip	$21,702,844.56	
Add preferred stock to be issued for consolidat'n with La Crosse, Tremp'leau & Prescott R. R. Co	500.000.00	
	$22,202,844.56	
Less for stock to be issued, and stock and scrip owned by company	677,321.84	
	21,525,522.72	
		$36,514,220.21
Chic. & N. W. Railway Co., various issues bonds	$31,406,000.00	
Chic. & Milwaukee Railway bonds	1,700,000.00	
		33,106,000.00
Live Bonds in sinking fund:		
Madison Extension gold bonds	$47,000.00	
Menominee " "	40,000.00	
		87,000.00
Sinking funds paid:		
On Madison Extension gold bonds	$47,000.00	
" Menominee " "	40,000.00	
" General consolidated "	530,500.00	
		617,500.00
General consolidated gold bonds unsold		777,500.00
Real estate time payments, mostly due in 1880		223,750.00
Balance due leased roads in Iowa		252,597.92
Current bills, pay-rolls and accounts		1,151,563.37
Coupons, old dividends, etc., including coupons due June 1, 1879		936,884.75
Common and preferred dividends, payable June 28, 1879		676,292.00
Income account:		
Balance May 31, 1879		4,342,772.17
		$78,686,080.42
Debit:		
Cost of Road and Equipment:		
Balance to debit of this account, May 31, 1878	$71,038,234.69	
Add cost of Menominee River R. R.	402,500.00	
Add cost of Stanwood & Tipton R.	157,488.11	
" cost of stock of Northwestern Union Railway	6,655.00	
Add construction, year ending May 31, 1879	355,209.16	
Add new engines and cars, May 31, 1879	412,941.68	
		$72,373,028.64
Trustees of sinking funds:		
Farmers' Loan & Trust Co., Trustee	$87,000.00	
Union Trust Co	530,500.00	
		617,500.00
Proprietary Railroads:		
Balance due from proprietary roads, for construction, purchase, etc. (deducting land moneys)		1,513,923.57
Assets:		
Railroad bonds		2,100.00
Town bonds		160,600.00
Capital stock of Winona & St. Peter R. R.		100,000.00
General consolidated gold bonds on hand		777,500.00
Advances account land grants		28,155.69
Materials and fuel on hand		778,213.13
Due from Express Companies		7,714.81
" " U. S. Government		76,094.38
" " station agents, earnings and collections		595,362.35
Due from sundry companies and individuals		193,975.66
Bills receivable		44,398.32
Cash		1,417,513.87
		$78,686,080.42

The stock remains as at the date of the last report. The futher amount of $500,000 of preferred stock may be issued at the pleasure of the company for stock of the La Crosse, Trempealeau & Prescott Railroad Company, re-

IOWA MINOR RAILROADS IN 1878.

NAME OF ROAD.	PROPERTY. Miles owned	Miles leased	Locomotives	Passenger train cars	Freight and other cars	LIABILITIES. Stock	Bonds	Other debt	TRAFFIC. Train mileage	Passenger mileage	Tonnage mileage	Av'ge rate per passenger per mile.	Average rate per ton per mile	EARNINGS. Gross earnings	Expenses	Net earnings	Gross earnings per mile	Net earnings per mile	Per cent. of expenses	Interest and rentals paid.	Interest due but not paid.
												Cts.	Cts.								
Burlington & Southwestern	142	30	5	5	153	$1,793,700	$3,488,000	$200,000	233,048	.....	.....	4.00	.....	$187,956	$197,185	*$9,229	$1,038	.....	105	.....	.....
Chicago, Clinton, Dubuque & Minnesota	208	14	12	13	424	6,156,600	.....	280,335	372,317	3,963,083	14,577,349	3.78	2.54	538,595	277,648	260,947	2,426	$1,175	52	.....	.....
Davenport & Northwestern	101	....	8	10	104	3,420,000	1,710,000	196,827	187,487	.....	.....	3.50	.....	222,627	204,889	17,738	1,383	110	92	$2,273	$85,000
Des Moines & Ft. Dodge	87	....	9	8	150	4,000,000	2,178,000	.....	126,667	1,396,807	2,424,257	4.01	4.76	182,812	130,336	52,476	2,101	603	71	65,520	.....
Dubuque Southwestern	55	...	4	4	91	1,180,805	677,708	9,608	66,500	.....	.....	4.00	.....	102,107	97,514	4,593	1,855	84	95	.....	38,095
Grinnell & Montezuma (2½ months)	14	3	1	2	3	150,000	100,000	.....	.....	.....	.....	.....	.....	3,077	2,767	310	181	18	90	.....	8,000
Iowa Railway, Coal & M'f'g Co.	3	....	1	....	1	60,000	.....	.....	.....	.....	.....	3.00	.....	9,425	6,411	3,014	3,142	1,005	64	.....	.....
Missouri, Iowa & Nebraska	85	....	5	4	81	1,460,075	1,800,000	.....	119,620	.....	.....	4.00	.....	98,827	101,950	*3,123	1,163	.....	103	.....	126,000
Newton & Monroe	17	....	1	1	12	85,000	.....	.....	20,468	150,674	186,886	3.08	9.86	23,087	14,383	8,704	1,358	512	62	.....	.....
Sioux City & Pacific	107	51	13	14	148	2,008,400	3,256,320	1,149,360	164,745	2,098,782	6,109,675	3.05	2.40	283,326	178,697	104,629	3,542	1,308	74	110,755	1,560
Toledo & Northwestern	3	....	1	1	....	11,150	.....	.....	9,000	.....	.....	.....	.....	5,707	4,582	1,125	1,902	375	80	.....	.....
Narrow-Gauge Roads:																					
Burlington & Northwestern	20	14	2	2	39	135,442	.....	60,000	23,976	138,731	171,208	2.70	5.90	15,150	10,904	4,246	446	125	72	10,444	.....
Crooked Creek	8	....	1	1	30	71,500	.....	.....	9,984	5,502	48,522	3.75	8.75	4,689	5,744	*1,055	586	.....	122	.....	.....
Des Moines & Minneapolis	57	....	4	6	70	165,190	232,000	97,902	74,000	.....	.....	3.00	.....	65,069	42,251	22,818	1,142	400	65	15,744	6,873
Iowa Eastern	19	....	1	3	30	.....	270,000	10,050	.....	.....	.....	.....	.....	21,174	14,190	6,984	1,115	368	67	.....	22,404
Waukon & Mississippi (8 mo's)	23	....	1	1	10	83,300	27,000	44,908	.....	.....	.....	.....	.....	17,400	8,629	8,771	757	381	50	1,080	.....

*Deficit.

The above statements are from the reports made to the Iowa Railroad Commission for the year ending June 30, 1878, and include all those roads whose reports have not been published in another form or included in lessees' reports. Many of the reports are defective in their statements of traffic.

The Sioux City & Pacific reports stock, debt, etc., for the whole road, but earnings and traffic only for the 80 miles of road in Iowa.

Since the date of the reports the Davenport & Northwestern and the Dubuque Southwestern have been sold to the Chicago, Milwaukee & St. Paul Company. The Newton & Monroe has been sold at sheriff's sale and bought for the Chicago, Rock Island & Pacific Company. The Burlington & Southwestern is in the hands of a receiver, who pays no interest. The Des Moines & Minneapolis has lately been leased to the Chicago & Northwestern.

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ceived at its consolidation on June 6, 1877, and representing the balance of cost of that property.

On July 1, 1878, $114,500 of bonds, known as Elgin & State Line Railroad bonds, issued by the old Galena & Chicago Union Railroad Company, fell due and were paid. A like amount of consolidated sinking fund bonds, maturing in 1915, were thereupon issued and sold in accordance with the terms of the trust deed authorizing the same.

Consolidated sinking fund bonds were also issued on advantageous terms to the company in substitution for the following described bonds retired and cancelled, viz.: for $241,900 preferred sinking fund bonds, due in 1885; for $55,500 Green Bay Extension bonds, due in 1885; for $32,200 funded coupon bonds, due in 1883; for $37,400 general first-mortgage bonds, due in 1885; for $22,000 Galena & Chicago Union first-mortgage bonds, due in 1882; and for $2,000 Beloit & Madison bonds, due in 1888, making a total of $505,000 paid off, retired and cancelled during the year, and the same amount of consolidated sinking fund bonds issued in lieu thereof.

Besides the annual amount of $23,000 of Winona & St. Peter Extension gold bonds paid into the sinking fund, there have been purchased $62,000 of this issue from the proceeds of land-grant lands sold by that company, and the bonds cancelled.

For the construction of the branch lines in Minnesota, the several railroad companies organized for that purpose issued their first-mortgage bonds, which were taken by this company and endorsed and sold in amounts as follows: Minnesota Valley, $150,000; Rochester and Northern Minnesota, $200,000; Plainview, $100,000.

The total bonded debt for which the company is liable, is as follows, including $87,000 bonds in sinking funds:

Chicago & Northwestern direct obligations	$33,193,000
Bonds of proprietary roads	14,013,000
Total	$47,206,000

All bear 7 per cent. interest except $1,350,000 Iowa Midland 8 per cent. bonds, making the yearly interest charge $3,317,920. The capital accounts of the proprietary roads are as follows:

	Stock.	Bonds.	Accounts.	Due C. & N. W. for adv.
Northwestern Union	.....	$3,454,000	$ 92,000	.....
Iowa Midland	$ 50,000	1,350,000	.....	$ 90,625
Winona & St. Peter.	400,000	8,666,000	179,624	1,416,860
W. & St. P. branches:				
Win., Mankato & New Ulm	100,000	.....	.....	72,559
Minnesota Valley	15,000	150,000	.....	.....
Rochester & No. Minn	15,000	200,000	.....	25,269
Plainview	6,260	100,000	.....	.....
Chatfield	1,250	.....	.....	53,736

The Chicago & Northwestern Company owns all the stock of the proprietary roads and guarantees all their bonds, being thus practically sole owner of the entire property.

The train mileage, etc., of the entire system (2,129.37 miles average) was as follows:

Train mileage:	1878-79.	1877-78.	Inc. or Dec.	P. c.
Passenger	2,854,776	2,681,373	I. 173,403	6.5
Freight	5,557,051	5,098,979	I. 458,072	9.0
Service	580,975	534,766	I. 46,209	8.7
Switching	2,132,857	1,983,207	I. 149,650	7.6
Total	11,123,659	10,298,325	I. 827,334	8.0
Mileage of passenger train cars	13,216,860	12,270,628	I. 946,232	7.7
Mileage of freight cars	120,592,725	109,496,805	I. 11,095,920	10.1
Receipt per train mile	138.00 cts.	151.00 cts.	D. 13.00 cts.	8.6
Net per train mile	65.18 "	73.03 "	D. 7.82 "	10.7
Cost of motive power per train mile	19.51 "	21.60 "	D. 2.09 "	9.7

The average passenger train was 4.63 cars; average freight train, 15.68 cars. An average of 90 passenger, and 113 freight trains ran over the company's lines each day.

The work done by these trains was as follows:

	1878-79.	1877-78.	Inc. or Dec.	P. c.
Passengers carried	3,328,427	3,416,413	D. 87,986	2.6
Passenger mileage	116,068,482	118,877,406	D. 2,808,924	2.4
Tons freight carried	4,265,937	3,911,261	I. 354,676	9.1
Tonnage mileage	681,878,311	623,768,593	I. 58,109,718	9.3
Av. train load:				
Passengers, number	40.66	44.33	D. 3.67	8.3
Freight, tons	122.70	122.30	I. 0.40	0.3
Av. receipt:				
Per passenger per mile	2.79 cts.	2.83 cts.	D. 0.04 ct.	1.4
Per ton per mile	1.56 "	1.72 "	D. 0.16 "	9.3

The considerable decrease in the rate per ton per mile is equal to a total of $1,090,939.36 on the entire freight traffic of the year.

The average number of employés was 8,511.25, of whom 2,962.25 were at work on roadway and track; 1,836.67 in station service; 2,132.08 in the machinery department; 665.58 in the car department; 787.67 in train service; 12.75 in the land office; 27.08 in miscellaneous service and 87.17 in the general offices. The number of employés per mile of road was 3.99, and the average monthly pay-roll was $190.21 per mile.

The earnings of the Chicago & Northwestern proper, 1,616.27 miles average, were as follows:

	1878-79.	1877-78.	Inc. or Dec.	P. c.
Passengers	$2,844,062.77	$2,978,729.25	D. $134,666.48	4.5
Freight	9,924,030.47	10,016,920.72	D. 92,890.25	0.9
Express	254,653.57	248,766.66	I. 5,886.85	2.4
Mails	261,664.23	263,422.25	D. 1,728.02	0.7
Miscellan's	136,165.00	76,008.36	I. 60,156.64	79.2
Total	$13,420,605.98	$13,583,847.24	D. $163,241.26	1.2
Expenses and taxes	6,603,794.10	6,756,126.46	D. 152,332.36	2.3
Net earnings	$6,816,811.80	$6,827,720.78	D. $10,908.90	0.2
Gross earn. per mile	8,303.44	8,625.76	D. 322.32	3 7
Net earnings per mile	4,217.62	4,335.61	D. 117.99	2.7
Per cent. of exps	49.21	49.74	D. 0.53	1.1

The earnings of the proprietary roads were as follows:

	1878-79.	1877-78.	Inc. or Dec.	P. c.
Winona & St. Peter and branches	$807,410.75	$795,663.64	I. $11,747.11	1.5
Northwestern Union	278,451.28	280,928.73	D. 2,477.45	0.9
Iowa Midland	74,453.38	90,622.88	D. 16,169.50	17.8
Total	$1,160,315.41	$1,167,215.25	D. $6,899.84	0.6
Expenses and taxes	1,103,855.03	864,819.33	I. 239,035.70	27.6
Net earn	$56,460.38	$302,395.92	D. $245,935.54	81.3

The interest charges on the proprietary roads were $979,346.18, leaving a deficit of $922,885.90 on those lines for the year.

The working expenses of the Chicago & Northwestern proper are given in detail in the following table:

	Year ending May 31, '78.	Year ending May 31, '79.	Increase.	Decrease.
Repairs of engines and tenders	$484,685.59	$452,857.86	.....	$31,827.73
Repairs of cars	481,804.90	474,070.30	.....	7,734.60
" buildings	115,400.54	104,607.14	.....	10,793.40
" fences, gates, crossings	65,658.80	62,509.62	.....	3,149.18
Repairs of bridges and culverts	241,127.51	166,749.54	.....	74,377.97
Repairs of track	1,259,925.75	1,300,774.80	$40,849.05	.....
" tools and machinery	78,387.06	80,627.05	2,239.99	.....
Fuel used by locomotives	773,646.39	667,214.37	.....	106,432.02
Fuel and lights used in cars and at stations	77,977.38	70,278.71	.....	7,698.67
Oil, waste and tallow used	74,477.34	63,416.93	.....	11,060.41
Office and station furniture and expenses	50,007.88	47,703.99	.....	2,303.89
Furniture and fixtures for cars	15,453.99	12,683.75	.....	2,770.24
Foreign agents	53,368.40	54,701.04	1,332.64	.....
Advertising	26,926.48	25,404.91	.....	1,521.57
Stationery, printed blanks, tickets, &c	41,559.33	46,659.08	5,099.75	.....
Engineers, firemen and wipers	655,888.66	674,158.85	18,270.19	.....
Conductors, baggagemen and brakemen	420,632.95	441,700.40	21,067.45	.....
Lab'r's and switchmen at stations	599 871.10	613,429.54	13,558.44	.....
Agents and clerks at stations	610,856.33	639,668.86	28,812.53	.....
Superintendence	86,228.61	86,628 64	400.00	.....
Rents	21,388.85	16,563.84	.....	4 795.01
Loss and damage	31,816.58	28,277.65	.....	3,538.93
Injury to persons	42,220.55	66,429.94	24 209.39	.....
Teaming freight, baggage and mails	4,124.55	3,459.07	.....	665.48
Miscellaneous expenses	48,671.10	62,764.49	14,093.39	.....
Car-hire paid over amount received	68,797.19	26,585.29	.....	42,211.90
Total	$6,430,873.84	$6,289,925.57	$169,932.73	$310,881.00
Add for taxes	325,952.62	313,868.53	.....	11,384.09
Total	$6,756,126.46	$6,603,794.10	$169,932.73	$322,265.09

The combined statement for all the lines worked was as follows:

Gross earnings ($6,847.53 per mile)	$14,580,921.39
Expenses and taxes	7,707,649.13
Net earnings ($3,227.84 per mile)	$6,873,272.26

Net earnings		$6,873,272.26
Interest on bonds and gold premium	$3,261,792.75	
Rent of Iowa leased roads	1,225,731.61	
Account of sinking funds	98,120.00	
		4,585,644.36
Surplus for the year		$2,287,627.90
Dividends on preferred stock, 7 per cent.	$1,506,568	
Dividends on common stock, 2 per cent.	299,650	
		1,806,218.00
Balance of net earnings		$481,409.90

Compared with the previous year there was a decrease in passenger earnings of $125,982.70, or 3.74 per cent., a increase in freight earnings of $116,800.59, or 1.09 per cent., and an increase in the aggregate of other earnings of $72,642.19, or 11.53 per cent., making a total decrease in gross earnings of $170,141.10, or 1.15 per cent.

In operating expenses there was an increase of $89,534.09, or 1.23 per cent.; a decrease in fixed charges and other items of $82,815.93, or 1.65 per cent. making an aggregate decrease of $6,718.16, or 0.5 per cent.; the decrease in net earnings amounted to $176,859.26, as shown in the foregoing statement.

A summary of the general income account is as follows:

Balance, May 31, 1878		$4,177,015.16
Less items properly chargeable prior to that time		16,002.89
Balance to credit, May 31, 1878		$4,161,012.27
Receipts of road		13,420,605.98
Interest and exchange		21,012.03
Total		$17,602,630.28
Expenses, taxes and interest	$8,922,252.70	
Account sinking funds	83,120.00	
Rent of Iowa roads	1,225,731.61	
Dividends (including as above and also 2 per cent. on common stock for previous year)	2,105,868.00	
Advances to proprietary roads	922,885.80	
		13,259,858.11
Balance of income account, May 31, 1879		$4,342,772.17

Advances to proprietary roads included $684,534.34 to the Winona & St. Peter railroad and branches; 107,495.80 to the Iowa Midland and $130,855.66 to the Northwestern Union.

The outlays for works of construction during the fiscal year were as follows:

For 11 2325/5280 miles of new side tracks, $59,536.88; for new extensions to the iron mines on Peninsula Division, $6,117.32; for account of new shops at West Chicago, $8,136.59; for new depots, docks, water stations, eating house, etc., $37,212.16; for constructing telegraph, $941.83; for arching tunnel No. 2, on Madison Division, $48,358.17; for fences, gates and crossings, $3,013.82; for account of permanent bridging and extra cost of renewals with iron structures, $162,410.06; for constructing dykes at Missouri River, $1,773.95, and for right of way and depot grounds, $27,708.38; total for Chicago and Northwestern Railway, $355,209.16.

On the proprietary roads there was expended on the Winona & St. Peter Railroad and branches, for right of way, buildings, etc., $52,092.54, and for 5 745/5280 miles of new side tracks, $16,869.37. On the Iowa Midland Railway, for right of way and new side tracks, $3,323.19, and on the Northwestern Union Railway, for right of way, buildings and new side tracks, the sum of $7,333.98.

During the year 22,692 tons of new steel rails were laid in the track in renewals, the whole cost being charged to expenses; 1,287 tons of rerolled iron rails were used, and 17,453 iron and steel rails were repaired and relaid. There were 779,455 new ties laid. At the close of the year there were 956.41 miles of steel track on the Northwestern proper, and 35.32 miles on proprietary lines. The Winona & St. Peter track in Dakota was repaired and put in order, the advance of settlement making its constant use necessary.

The usual improvements on the various lines were made, the most notable being the change of track and reduction of grade near Dundee and Carpenterville on the Freeport Line; additional protection to the Mississippi River Bridge at Clinton; renewal of bridges on the Iowa Division and renewal of bridges and filling of trestles on the Madison Division.

The report of President Keep says, in conclusion: "The results of the last year are not only favorable but assuring to stockholders, as evidence of the stability of the company and the strength and variety of its resources during a season of exceptional damage to the wheat crop in the regions tributary to our lines. The loss of revenue inseparable from this cause was nearly made good from other branches of traffic, and from the general improvement incident to the growth and management of the property.

"The wheat harvest of the present season is already secured; the prospects of an excellent corn crop were never better; there is a large increase in the iron ore traffic, and a considerable improvement both in respect to passengers and freight on all our lines."